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PROPOSED MEDIUM-TERM PLAN FOR THE PERIOD 1992-1997*

MAJOR PROGRAMME IV. INTERNATIONAL ECONOMIC CO-OPERATION FOR DEVELOPMENT

Programme 16. Environment

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* The present document contains programme 16 of the proposed medium-term plan for the period 1992-1997. The complete medium-term plan will subsequently be issued in final printed form as Official Records of the General Assembly, Forty-fifth Session, Supplement No. 6 (A/45/6/Rev.1).

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PROGRAMME 16. ENVIRONMENT

A. Programme

1. General orientation

16.1 The general mandate for the programme on environment derives from General Assembly resolution 2997 (XXVII) of 15 December 1972 on institutional and financial arrangements for international environmental co-operation. By that resolution the General Assembly established the Governing Council of the United Nations Environment Programme (UNEP), the Environment Secretariat and the Environment Fund. In its resolution 32/197 of 20 December 1977, the General Assembly assigned the responsibility for inter-agency co-ordination in the field of environment at the inter-secretariat level to the Administrative Committee on Co-ordination under the leadership of the Secretary-General.

16.2 The current state of the environment suggests that the environmental problems that will dominate the concerns of both developing and developed countries well into the twenty-first century will fall into two broad categories:

(a) Uses of natural resources that lessen the productive capacity of the biosphere;

(b) Pollution that threatens human well-being, health and even life itself.

16.3 As the world industrializes and exploits its natural resources, waste products emitted from the burning of fossil fuel and intensive land utilization have altered and still continue to change the composition of the global atmosphere. Carbon dioxide, methane, nitrous oxide and chlorofluorocarbons - the "greenhouse" gases - are currently accumulating in the atmosphere and changing the way in which the Earth's temperature is regulated. The Earth is warming and if the emission of greenhouse gases remains unchecked, it will get hotter still, with temperatures perhaps rising to levels unprecedented in the history of mankind. Changes in rainfall, temperature and wind patterns will combine to affect significantly the social and economic progress of the world's nations, and it is likely that the poorest may suffer most.

16.4 By the end of the present century the global population is expected to reach 6.2 billion, the highest growth rates being forecast for developing countries. This increases the urgency of the need to examine whether water resources are being properly managed in order to meet the expected rises in demand. Closely related to that subject is climate change: if the trends identified so far continue to exert their influences, many regions will become more vulnerable to floods and droughts; there will be a deterioration in the quality of surface and sub-surface waters and a depletion of ground-water resources. Co-ordinated long-term strategies need to be developed for the next century, but at the present time, there is an immediate need to concentrate on the environmental problems of freshwater surface and sub-surface systems, which are already exposed to greatest risk.

16.5 Problems related to the marine environment have not changed greatly in the past two decades, but general perceptions of the main threats and corresponding solutions have changed markedly on the basis of knowledge accumulated during that period. Although there is still an interest in levels of contamination in the open

ocean and in major oceanic processes, the danger of the open ocean becoming severely polluted is now considered to be less acute, and it is evident that existing problems, as well as the first effects of new ones, are most likely to arise in waters close to land. Attention is therefore being concentrated on protecting the health of the coastal waters, especially in enclosed and semi-enclosed seas. The continued growth of human settlement along the coast, the increase in coastal recreation, the concentration of industrial development in coastal areas and the wealth of exploitable living marine resources in coastal waters, all justify the concern currently felt for the quality of the coastal marine environment and its resources.

16.6 Land degradation is now so severe in many areas of the developing world that controlling it has become a matter of life and death, particularly for low-income farmers. Desertification is a world-wide process of essentially man-made ecological degradation by which economically bioproductive land is rendered unproductive. The phenomenon exists in varying degrees in more than one hundred countries within the fragile semi-arid and sub-humid regions, most of which are developing countries that lack the technological and human resources to reverse it. Drought, a natural recurrent climatic hazard distinct from desertification, exacerbates the phenomenon to crisis levels in several countries.

16.7 The maintenance of biological diversity, which encompasses all species of plants, animals and micro-organisms and the ecosystems of which they are part, is a major element in achieving sustainable development. The pressures on biological diversity are, however, intense and increasing rapidly as a result of rapid population growth and poverty, excessive use of a limited number of high-yielding varieties of crops, over-exploitation of selected species of commercial or aesthetic value, careless application of polluting technologies and the failure to take into account the multiple values of biological diversity in development planning processes. One of the most serious consequences is the accelerating permanent loss of species and sub-species of plants and animals and the destruction of the world's most diverse ecosystems.

16.8 World-wide production and use of chemicals is a relatively recent historical phenomenon, which has brought considerable benefits but has also involved serious problems related to their manufacture, storage, transport, handling and use. Chemicals are pervasive in the environment and air and water pollution does not recognize national borders. There is thus more than ever an urgent need to strengthen international co-operation, to intensify the exchange of scientific, technical, economic and legal information on chemicals, and to improve chemical safety at the country level through strengthening of national institutions and risk-management techniques.

16.9 The production and use of chemicals are inevitably accompanied by the production of unwanted products requiring disposal. As amounts of hazardous wastes produced have increased considerably over the past decades, problems related to their safe disposal have grown concomitantly. Although industry has begun to realize the value of reducing the production of unwanted by-products through increased industrial efficiency and through recycling and re-use of waste materials hitherto considered valueless, such solutions are still often prohibitively expensive and rarely very efficient. Faced with their rising costs of safe waste disposal at home, waste generators have shown an increasing tendency to pass their waste problems on to other countries, particularly developing ones where waste control legislation is often less strict or less vigorously enforced. The

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Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, adopted in March 1989 at Basel, Switzerland, is an attempt by the international community to minimize and strictly control international movements of hazardous wastes. The Convention strongly advocates serious reduction of hazardous wastes as well as their environmentally sound disposal as close as possible to the point of generation.

2. Overall strategy

16.10 The activities of the Secretariat, which involves research, monitoring and assessment, technical co-operation, training, dissemination of information, and development of international legal instruments, may be summarized as follows:

Environmental assessment

(a) Environmental assessment draws on two sources of scientific data and information. The first consists of the information systems that exist in most United Nations bodies and include scientific and technical information and references of interest primarily to the organization concerned. The second source is the monitoring systems (national, regional and global) that have been established for surveillance of particular environmental parameters;

(b) The various information systems in the United Nations system will continue to collect, classify and store scientific and technical environmental data needed to prepare technical documents for scientists and information useful for planners, managers, scientists and the public. Field stations set up by Governments collect baseline data and monitor a variety of environmental parameters. National Governments, using guidelines and quality assurance procedures largely developed and agreed upon internationally through the Global Environmental Monitoring System, set up the monitoring stations and collect the data, which are checked before being passed on to the appropriate international data base for each particular network. Programmes and projects of agencies of the system that have environmental components can be useful sources of information. The appropriate agency (the World Meteorological Organization (WMO) for the atmosphere, climate and surface waters; the Intergovernmental Oceanographic Commission (IOC) and WMO for the oceans; the World Health Organization (WHO) for health; Food and Agriculture Organization of the United Nations (FAO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) for natural resources), in conjunction with UNEP, then prepares the first technical evaluation using groups of internationally recognized experts;

(c) Comprehensive data sets on chemicals in common use will be collected and validated, the health and environmental risks of these products carefully assessed and the results distributed widely. UNEP will continue to co-operate with other international organizations, including FAO, the International Labour Organisation (ILO) and WHO, in particular in the context of the International Programme on Chemical Safety. During the six years of the medium-term plan, assessments will be completed and updated continuously on desertification, tropical forests and rangelands, soil degradation, damage to forests due to acidification, species at risk, acidic deposition, selected contaminants, global climate change, ozone modification and its impact, and the socio-economic impact of regional climate change.

Environmental management

(a) Environmental management follows environmental assessment and comprises measures that bring about the desired result, namely, development that is sustainable and that ensures the maintenance of environmental quality. Environmental management has been defined as controlling and directing all human activities that depend upon the resources of the environment and have some effect upon it. Integrating environment and development must begin at the planning stage, well before irrevocable decisions are made. Planning is based upon a definition of the broad goals and specific objectives to be achieved, which is properly the product of some form of political process, and upon the information accumulated and interpreted by environmental assessment. Proper management is based on relevant information relating to policy issues, such as the equitable use of resources, to environmental and ecological factors, such as land capability, and to socio-economic factors, such as desirable levels of human nutrition;

(b) Environmental management is the exclusive responsibility of Governments, although individuals, voluntary groups and corporations may contribute significantly to the process to the extent that the law allows. The role of the United Nations system is to provide support and technical assistance. It can help to develop concepts and tools of environmental management and can stimulate awareness of the need for environmental management and increase understanding of the approaches available. At the international level, the United Nations system can facilitate the development of international environmental law and the establishment of institutions to administer it.

Environmental awareness and environmental training

(a) The creation of environmental awareness is essential for both assessment and management. Only if people are aware of the environment and its significance to their lives will they themselves act in an environmentally responsible manner and give the support needed to essential environmental programmes;

(b) The main purpose of environmental awareness-building is to develop in national decision-makers and citizens, particularly the young, the knowledge, attitudes and skills necessary to understand, appreciate and handle the relationships between human beings and their physical, biological and socio-cultural environment. Environmental awareness should be based upon reliable and objective scientific and technical knowledge, derived from environmental assessment and research and the lessons learned from environmental management. While the forms of presentation may change, one and the same body of knowledge must be transmitted through both education and public information programmes.

16.11 This programme is closely related to all other programmes of the medium-term plan and to the medium-term plans of the specialized agencies of the United Nations system through the system-wide medium-term environment programme. The first special session of the Governing Council of UNEP, held at Nairobi in March 1988, adopted the second United Nations system-wide medium-term environment programme for the period 1990-1995, submitted to it by the Administrative Committee on Co-ordination. In paragraph 4 of its decision SS.I/7, the Governing Council recommended to the General Assembly that "the global programme on the environment of the United Nations medium-term plan beginning in 1992 be structured along the lines of the system-wide medium-term environment programme to ensure uniformity of content and to facilitate co-ordination of the environmental activities being

undertaken by the United Nations system". Therefore the programme on environment follows the structure and draws heavily on the content of the system-wide medium-term environment programme.

3. Subprogramme structure and priorities

16.12 Based on the above general orientation and strategy, the environment programme is comprised of the following 13 subprogrammes:

1. Atmosphere;
2. Water;
3. Terrestrial ecosystems;
4. Oceans;
5. Lithosphere;
6. Human settlements and the environment;
7. Human health and welfare;
8. Energy, industry and transportation;
9. Peace, security and the environment;
10. Environmental assessment;
11. Environmental management measures;
12. Environmental awareness;
13. Technical and regional co-operation.

16.13 Subprogrammes 1, 2, 3, 4, 7 and 8 are designated high priority.

16.14 The orientation of the programme and the structure and nature of its subprogrammes may require modification following the United Nations Conference on Environment and Development scheduled for June 1992.

B. Subprogrammes

SUBPROGRAMME 1. ATMOSPHERE

(a) Objectives

16.15 The legislative authority for the present subprogramme derives from General Assembly resolutions 42/182, 43/53, 44/206 and 44/207; resolution I of the Governing Council at its session of a special character of 1982, section III, paragraph 2 (a); and Council decisions 11/7, part two, section B, subsection I, 12/14, section I, 13/18, section I and annex, 13/24, 14/20, 14/28, 15/35 and 15/36.

16.16 Atmospheric composition is changing as a result of human activities such as deforestation, changes in land-use practices, the burning of fossil fuels and other anthropogenic emissions. These emissions have already caused serious environmental problems, including urban pollution, acidification and the depletion of the stratospheric ozone layer.

16.17 Climate change is one of the most significant environmental threats to the future, affecting global ecosystems, agriculture, water resources, ice and snow, and sea level. It is believed that global mean temperatures may rise by between 1.5° C and 4.5° C and that, consequently, the sea level, owing primarily to thermal expansion, would also rise by about 30 centimetres. This would result from

increasing concentrations of greenhouse gases in the atmosphere equivalent to a doubling of pre-industrial carbon dioxide concentration. This doubling is expected to occur about the year 2030.

16.18 UNEP co-ordinates the activities needed for the assessment of ozone layer depletion in close co-operation with WMO and assesses the effects of ozone layer modification in co-operation with other United Nations specialized agencies and bodies, such as WHO, FAO and the International Civil Aviation Organization (ICAO), and relevant governmental and non-governmental organizations. Those assessments provide the scientific basis for action to protect the ozone layer, which is represented by the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer. The Global Environmental Monitoring System atmosphere programme is closely co-ordinated with other relevant international programmes such as the International Geosphere-Biosphere Programme. As part of the World Climate Impact Studies Programme, UNEP is co-ordinating national climate impact study programmes in an international network to encourage better understanding of climate and its effective utilization as a resource.

16.19 The role that increasing concentrations of greenhouse gases play in modifying the Earth's climate is also regularly assessed jointly by UNEP, WMO and the International Council of Scientific Unions (ICSU), the organizations responsible for implementing the World Climate Programme. A series of international conferences on the issue of climate change, held at Villach, Austria, under the World Climate Programme, have identified the issue as perhaps the most serious current environmental problem to be faced. In order to meet the challenge of future climate change, UNEP and WMO have established an Intergovernmental Panel on Climate Change to carry out an exhaustive review of the science, impacts and possible responses to climate change in order to prepare the basis for legislative action to limit climate change.

16.20 In addition the World Climate Impact Studies Programme has embarked on a major programme to increase public awareness of the issue and to encourage national and regional assessments of the impacts of climatic variability and change, and the identification of effective policy response. In its catalytic role, UNEP is assisting selected regions that lack the necessary scientific or financial resources to undertake the "policy exercises" in preparation for climate change. At the same time, efforts to improve knowledge of air pollution, acid precipitation and other major atmospheric issues and to identify solutions to those problems are being undertaken, drawing on technical, scientific and administrative resources at national and international levels.

16.21 The objectives of the subprogramme are therefore:

(a) To promote and support the expansion of global networks to monitor air quality, establish processes to undertake regular assessments of the state of the atmosphere and to promote the development and adoption of legislation, protocols and international agreements, where appropriate, to ensure the control of emissions resulting from human activities that contaminate the atmosphere, change its composition and contribute to climate change;

(b) To assess the effects of climatic variability and change on human activities, to encourage the more widespread application of climate knowledge and data to human activities, thus assisting Governments in adopting policies that

would mitigate adverse impacts of climate variability and change, and to take advantage of any benefits that should accrue.

(b) Course of action of the Secretariat

16.22 The course of action for the period 1992-1997 consists of:

(a) Atmospheric composition, processes and pollution: (i) supporting the expansion of global networks for the monitoring of various parameters that determine atmospheric quality; (ii) supporting, as appropriate, the development and adoption of legislation, protocols and international agreements needed to introduce reduction and controls on emissions resulting from human activities and working towards improved quality and reliability of data, taking into account other social and economic goals; (iii) assisting States parties in the implementation of the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol, both of which came into force during 1989; and (iv) encouraging favourable status for developing countries by ensuring their access to new technologies and substitute chemicals for substances that deplete the ozone layer, in order to assist their compliance with the Vienna Convention and the Montreal Protocol and to ensure the total elimination of fully halogenated chlorofluorocarbons, halons and other substances likely to deplete the ozone layer by the year 2000 or soon thereafter;

(b) Climate and climatic change: (i) applying methodologies and encouraging national and regional assessments of the socio-economic implications of climate change and its impacts; (ii) making assessments of the impact of climate change on various socio-economic activities that are sensitive to such change and identifying the range of policy options that might be considered in responding to climate change; (iii) initiating dialogue between scientists and policy makers to adopt policies that can minimize climate change or better adapt society to cope with a changed climate régime; (iv) facilitating the work of the Intergovernmental Panel on Climate Change in its evaluation of scientific information and data, in the assessment of scientific and environmental aspects of climatic change and in the evaluation of international response to climate change in consultation with Governments and international agencies; and (v) if considered appropriate, preparing a legal instrument to address climatic modification and change in atmospheric conditions.

SUBPROGRAMME 2. WATER

(a) Objectives

16.23 The legislative authority for the present subprogramme derives from General Assembly resolutions 32/158 on the Mar del Plata Action Plan and 35/18 on the International Drinking Water Supply and Sanitation Decade; and Governing Council decisions 11/7, part five, 13/26, 14/13, 14/22, 15/1, 15/7, 15/9, 15/16 and 15/21.

16.24 Interactions between freshwater ecosystems on the one hand and human activities on the other are becoming more complex and incompatible as socio-economic development proceeds. Water basin development activities can have negative impacts too, leading to unsustainable development, particularly where these water resources are shared by two or more States. Multidisciplinary action programmes can provide the framework for countries to undertake the development of water resources in a sustainable way.

16.25 Poor water supply and inadequate sanitation, particularly in slums and squatter settlements and in rural areas, are largely responsible for the persistence and high prevalence of many communicable diseases in developing countries. The provision, maintenance and management of adequate supplies of water along with proper sanitation compete with other sectors for the limited development capital available. Inadequate operation and maintenance result in loss of water and unacceptable water quality. Both problems persist in many countries, even in large cities. National health and environment authorities have not yet fully assumed their proper role in this field. Further deterioration of water quality is caused by uncontrolled industrial wastes dumped into water courses and deforestation in head waters.

16.26 Against this background, a coherent and comprehensive programme for the environmentally sound management of inland waters has been prepared in co-operation with the major water-related programmes of the United Nations system (the Mar del Plata Action Plan, the International Drinking Water Supply and Sanitation Decade, the UNESCO International Hydrological Programme, and the WMO Operational Hydrology Programme). The programme on the environmentally sound management of inland waters is designed to assist Governments to integrate environmental considerations into the management and development of inland water systems with a view to reconciling conflicting interests and ensuring the regional development of water resources in harmony with the water-related (natural and man-made) environment throughout each water system as a whole. It increases the public awareness in relation to the management and development of water projects.

16.27 The objectives of the subprogramme are therefore:

(a) To assist Governments in developing, approving and implementing environmentally sound water management programmes in inland water systems and to use those programmes for demonstration purposes;

(b) To assist in the integration of environmental considerations into the planning and implementation of national programmes for sanitation and drinking-water supply.

(b) Course of action of the Secretariat

16.28 The course of action for the period 1992-1997 consists of:

(a) Water resources and freshwater ecosystems: (i) setting up of multidisciplinary programmes for the environmentally sound management of water resources in inland water systems, with priority for international water systems; (ii) promoting national institutional systems and developing human resources for environmentally sound water management; and (iii) taking into account the implications of regional and world-wide climate change and extensive man-made land changes for the preparation of all action plans for inland water systems;

(b) Drinking-water supply and sanitation: UNEP will support international efforts aiming at strengthening national institutional capabilities for the provision, maintenance and management of drinking-water and sanitation on a sustainable basis. UNEP will also support research and training in waste water treatment and recycling of waste water.

SUBPROGRAMME 3. TERRESTRIAL ECOSYSTEMS

(a) Objectives

16.29 The legislative authority for the present subprogramme derives from General Assembly resolutions 32/172, 35/74, 37/7, 39/168, S-13/2, 42/186, 42/187, 43/203, 44/172 and 44/229; Economic and Social Council resolution 1988/31; resolution I of the Governing Council at its session of a special character of 1982, sections I, paragraph 3 (b), III, paragraph 2, and IV, paragraph 3; and Council decisions 10/12, 10/13, 10/14, section III, 10/15, 10/16, 11/7, parts six and seven, 12/10, 12/12, sections II, III and V, 12/13, 12/14, section IV, 13/9 A, paragraphs 2 (c) and 2 (d), 13/18, sections II B and V, 13/27-13/30, 14/1 B, section I, 14/13-14/15, 14/21, paragraphs 5 (s) and 8 (i), 14/26, 15/1, section IV, 15/2, 15/16, 15/24 and 15/34.

16.30 At present, world soil resources are diminishing everywhere at an alarming speed, particularly in developing countries. Soil is a finite resource, extremely vulnerable to over-use and mismanagement. Our capacity to produce the food and fibre required for an increasing population is being undermined.

16.31 The achievements of the Plan of Action to Combat Desertification have been marginal compared to the magnitude of the problem. Although awareness of desertification as an environmental problem and organizational efforts to deal with it have grown significantly since the adoption of the Plan in 1977, the phenomenon is more widespread today than it was a decade ago. Major obstacles to implementation of the Plan, which need to be addressed directly, include lack of knowledge concerning the real extent and the site-specific causes of desertification. This leads to little public support for investment and development of areas affected by desertification. Far more long-term international co-operation and support is required to aid developing countries in halting desertification.

16.32 The global rate of deforestation of natural forests is estimated at close to 11 million hectares per year. The main causes of deforestation are the conversion of land for what is expected to be permanent agriculture, the use of forest areas for infrastructure development and the provision of fuel and timber. The imbalance between the rates of deforestation and afforestation results in changes in water retention capacity, soil degradation, albedo change and other forms of environmental degradation. The increasing number of endangered species of wildlife requiring immediate attention calls for urgent measures to prevent the loss or degradation of forest ecosystems and the genetic material they contain.

16.33 The need to conserve productive ecosystems, protect landscapes and control the pollution associated with urban growth, road and air transportation, industrial emissions or energy production remains important in the temperate and cold regions, calling for appropriate action by national and international bodies in a manner consistent with other economic and social objectives, with active support from public opinion. Acid deposition has become a major concern in the conservation and management of forests, particularly in developed countries.

16.34 Mountains and highlands are under increasing pressure, with larger and more demanding populations causing over-grazing, deforestation, soil erosion and the deterioration of water resources, and with the aggravation of natural hazards such as avalanches, mud flows and landslides. The deterioration of the ecological

balance, social conditions and the productivity of highlands affects not only local populations but also the infrastructure and people living in the lowlands, with serious economic and social consequences.

16.35 At present, biological diversity, which encompasses all species and their ecosystems, is decreasing at an alarming rate. The causes are habitat degradation and destruction and the over-exploitation of many species. This occurs despite the fact that sustainable development, the continued functioning of the biosphere and human survival depend on the conservation of biological diversity.

16.36 Microbiological processes have revealed their outstanding potential for use in environmentally sound development. Such uses include those relating to biological nitrogen fixation and the enhancement of soil fertility, bio-energy production, the conversion of organic wastes and biodegradable pollutants into valuable products, pest and vector control, ore-leaching, vaccine production and fermentations. The development and application of relevant microbial technologies, however, is not fully appreciated by policy makers in developing countries. The main constraints are the lack of specialized expertise, research equipment, up-to-date and well organized information, and of reliable access to microbial culture collections and cell lines. New developments in biotechnology create concern over their possible impacts on the environment and a strong demand exists for the formulation and implementation of biotechnology regulatory measures.

16.37 The increase in agricultural production in recent decades has been made possible because of increased mechanization, the introduction of higher-yielding crop and other plant varieties and the use of fertilizers and pesticides. In many instances, however, the environmental health hazards of those inputs and the economic problems associated with them, particularly chemical pesticides, could have been avoided through better pesticide management, the replacement of some extremely toxic chemicals with safer products, the introduction of alternative, integrated crop, plant and animal protection methods and strategies, and better understanding of the potential productivity of agricultural and forestry systems in terms of biomass production.

16.38 The subprogramme consolidates, extends and builds upon recent successful experiences. Parts of it are based upon previous intergovernmental consensus (e.g. the 1977 United Nations Conference on Desertification, the 1980 World Conservation Strategy, the 1982 World Charter for Nature, the 1984 Action Plan for Biosphere Reserves), while others take into account recent policy developments (e.g. the 1985 Tropical Forestry Action Plan, the 1983 International Undertaking on Plant Genetic Resources, the 1985 Cairo Programme for African Co-operation and the 1986 United Nations Programme of Action for African Economic Recovery and Development 1986-1990).

16.39 Legal instruments are important tools for harmonizing and improving international co-operative environmental management, and the programme will seek to strengthen existing international conventions such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on the Conservation of Migratory Species of Wild Animals, the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention) and the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), while also exploring the need for new agreements, especially with regard to the conservation of biological diversity. Close system-wide inter-agency co-operation and co-ordination will continue to be

maintained with bodies that are active in these areas, such as FAO, UNESCO, the Department of International Economic and Social Affairs of the Secretariat, the United Nations Development Programme (UNDP), the World Bank, the International Tropical Timber Organization (ITTO), the International Union for Conservation of Nature and Natural Resources (IUCN), the World Wildlife Fund (WWF) and the World Resources Institute (WRI), while new links will be forged at regional levels.

16.40 The objectives of the subprogramme are therefore:

(a) To support assessment of the status and risks of global soil degradation and to assist countries in formulating soil policies compatible with the wise use of other natural resources on a sustainable and productive basis;

(b) To achieve environmentally sound management of renewable resources in arid, semi-arid and sub-humid ecosystems to ensure their protection and sustainable productivity for improved quality of life of their inhabitants and nomads;

(c) To assist Governments in the strengthening of national capabilities in the sustainable management of tropical forest and woodland ecosystems and in the protection of the genetic variety they contain;

(d) To develop and apply suitable methods for monitoring changes in land use, as well as the impacts of pollution on natural ecosystems, in the temperate and cold zones and to promote the formulation and adoption of appropriate international agreements for environmental protection;

(e) To assist Governments in selected regions in the proper environmental management of mountain and highland ecosystems;

(f) To strengthen the capacity of developing countries for the conservation of wildlife and wildlands and of plant, animal and microbial genetic resources for sustainable development;

(g) To strengthen national and regional capabilities in the conservation of microbial genetic resources and in the development and application of environmentally sound microbial technologies;

(h) To promote the utilization of integrated crop production and animal protection in order to minimize the application of agrochemicals and to strengthen developing countries' ability to improve plant and livestock productivity.

(b) Course of action of the Secretariat

16.41 The course of action for the period 1992-1997 consists of:

(a) Soils: The UNEP strategy is centred on promoting, in close co-operation with FAO, the implementation of the Plan of Action for the Implementation of the World Soils Policy, adopted in 1982. The strategy includes (i) assessment of soil degradation for awareness and planning purposes; (ii) assistance to developing countries in the formulation and implementation of national soil policies; and (iii) training in and demonstration of environmentally sound management of soils to restore productivity, increase soil fertility and reduce degradation;

(b) Arid lands and desertification: the main thrust of the strategy lies in: (i) encouraging the application of existing knowledge and experience in desertification control; (ii) co-ordination and mobilization of the support of the United Nations system and the rest of the international community to reinforce bilateral and multilateral assistance programmes; (iii) tackling desertification through an integrated, multidisciplinary approach; (iv) concentration on the most seriously threatened areas, and on those areas most likely to offer the best chances for success; (v) supporting Governments in developing national action plans and subregional programmes for combating desertification; (vi) raising awareness of the magnitude of the problem and the proper utilization of human resources; and (vii) assisting concerned Governments in establishing desert research centres, so as to create a network of such centres;

(c) Tropical forest and woodland ecosystems: UNEP will (i) support the monitoring and assessment of forests and promote the incorporation of environmental considerations into planning and the rational use of tropical forests; (ii) reinforce existing mechanisms for encouraging Governments, through international co-operation, to establish and encourage the implementation of criteria for the selection and designation of representative protected areas of tropical forests and woodlands; (iii) support the development of increased capacity in national institutions to deal with sustainable management of forest land in close collaboration with FAO, UNESCO, ITTO and other governmental and non-governmental bodies;

(d) Temperate and cold zone ecosystems: UNEP will (i) support the continuing assessment of environmental change to establish the impact of pollutants on the temperate and cold zone regions; and (ii) participate in the formulation and implementation of appropriate agreements for the environmental protection and management of such regions;

(e) Mountain and highland ecosystems: UNEP will (i) co-operate with Governments and intergovernmental and non-governmental organizations in the assessment of environmental changes in mountain areas; (ii) participate in the establishment of subregional mechanisms for integrated management in the Andes, the Himalayas and Africa; and (iii) support information exchange on adequate management systems and the training of national staff in sustainable mountain and highland management;

(f) Biological diversity and protected areas: the UNEP strategy, based on the World Conservation Strategy, the World Charter for Nature and the Action Plan for Biosphere Reserves, consists of (i) assisting Governments in the formulation of national conservation strategies and in the implementation of existing international conventions for the conservation of the world's biological diversity, including genetic resources; (ii) conserving ecosystems and wild animals and plants in selected representative areas of the world's biogeographic provinces; (iii) promoting in situ and ex situ conservation of plant and animal genetic resources and development of related national, regional and global information systems; and (iv) expanding and improving related professional and institutional capability through appropriate training programmes in the conservation of biological diversity;

(g) Microbial resources and related biotechnologies: the UNEP strategy will be based on (i) strengthening and expanding the network of microbial resources centres, the International Microbial Strain Data Network and the World Data Centre

on Micro-Organisms; (ii) continued co-operation with relevant organizations for the conservation of microbial genetic resources and cell lines; (iii) emphasized development and application of appropriate microbial technologies in environmental management; (iv) formulation of safety criteria and guidelines for agricultural and environmental applications of biotechnology, taking account of the work of other international organizations;

(h) Agricultural lands and agrochemicals: the UNEP strategy, to be carried out in collaboration with FAO and other relevant organizations of the United Nations system and scientific and academic institutions, will include (i) integrated monitoring to establish the impacts of agrochemicals on the environment and human health; (ii) pilot projects on integrated crop production and animal protection; and (iii) training on the development and use of techniques and methods for integrated pest management, especially in developing countries, and for the measurement and improvement of plant productivity.

SUBPROGRAMME 4. OCEANS

(a) Objectives

16.42 The legislative authority for the present subprogramme derives from General Assembly resolutions 44/206 and 44/225; and Governing Council decisions 11/7, part one, paragraph 4 (c), part four, sections A and B and part eight, section A, paragraph 1 (f), 11/8, paragraph 2 (d), 11/9, paragraph 2 (b), 12/12, sections I, VIII and IX, 12/17 C, paragraph 3, 12/17 D, paragraphs 6 (a) and (c), 13/18, section II, 13/25, 13/32, 14/13, 14/21, paragraph 4, 15/1, section IV, and 15/25-27.

16.43 Over three billion people live within 50 kilometres of the coast. The population density of the world's coastal zones continues to increase because of the intensive use of space and resources for urbanization, industrialization, commerce and tourism. Meeting those demands without due environmental consideration has already degraded some important salt marshes, lagoons, beaches, estuaries and nearby seas. It is therefore vital and urgent to couple environmental and development management. Furthermore, island ecosystems with scant fauna and flora because of limited hinterlands are easily overwhelmed by human activity. Some changes are already extremely difficult, if not impossible, to reverse.

16.44 The health of the global oceans has been changing because of such human activities as deballasting oil tankers along the sea lanes, the increase of marine pollutants from terrestrial sources such as heavy metals and toxic synthetic compounds, including DDT and PCBs, and discarded, buoyant plastic litter. Living resources will continue to be over-exploited unless the harvest of all marine species is carefully balanced with their rates of reproduction. During the last few decades at least 25 important fisheries world wide have been depleted because of over-exploitation. Planned harvesting of mineral resources must be preceded by environmental impact assessment to prevent deleterious effects of mining upon the marine environment. There is concern over a possible rise in sea-level resulting from the global warming of the atmosphere associated with the increase in the concentration of greenhouse gases.

16.45 Most traditional fish stocks are either over-exploited or close to yielding the maximum they can sustain. Large-scale fishing operations now resemble mining rather than hunting operations, since the use of sophisticated electronic equipment and other modern techniques give the fish no chance to escape. Living marine resources, particularly fish and marine mammals, have in the past been managed on a stock by stock basis, if managed at all, without any consideration for existing relations between production, biomass, multi-species interactions and environmental factors. To avoid further over-exploitation of living marine resources an integrated, interdisciplinary approach to their management must be initiated.

16.46 The strategy of the United Nations, and of UNEP in particular, continues to be an interdisciplinary and integrated endeavour aimed at generating policies, plans and activities to elucidate ocean dynamics and to control and reduce marine pollution. Except for a few that are truly global, UNEP considers most marine environmental problems to be regional and site-specific. A globally co-ordinated regional approach to their solution will therefore continue to be the UNEP strategy for the years to come. To further such a co-ordinated regional approach, efforts will be made to ensure the effective application of the existing regional plans within the framework of the UNEP regional seas programme. New plans are being considered for regions where additional co-operation is needed.

16.47 At present over 130 States bordering 11 different seas around the world are co-operating within the UNEP regional seas programme for their own and mutual benefit. UNEP is also co-ordinating the environment programmes related to oceans within the United Nations system, and the IMO/FAO/UNESCO/WMO/WHO/IAEA/United Nations/UNEP Joint Group of Experts on the Scientific Aspects of Marine Pollution has been providing scientific advice on marine pollution problems. UNEP is serving as the lead agency for Working Group 26 of the Joint Group of Experts, which deals with the state of the marine environment. On the conservation of the marine and coastal environment, IUCN continues to be UNEP's technical partner. Such co-operation and co-ordination with many organizations will continue into the 1990s along with UNEP's partnership with the ICSU International Geosphere-Biosphere Programme, which may focus on the interactions between climate, oceanic primary production and oceanic carbon dioxide storage, globally as well as regionally.

16.48 The objectives of the subprogramme are therefore:

(a) To improve regional and interregional co-operation in the protection and management of marine regions, island ecosystems and their coastal zones;

(b) To assist Governments in setting up a system for global ocean monitoring and to support the continuing development and enforcement of international law related to the protection of the marine environment;

(c) To promote the formulation and implementation of consistent policies and programmes for the protection and sustainable use of living marine resources and their habitats, in particular marine mammals.

(b) Course of action of the Secretariat

16.49 The course of action for 1992-1997 consists of:

(a) Regional marine environments: (i) continuing to co-ordinate the promotion and early stages of the implementation of regional action plans; (ii) continuing to support the action plans for the protection of the marine environment and coastal areas, especially those which enjoy a high degree of commitment and involvement from the participating countries; (iii) developing regional information and data bases in co-ordination with existing information systems and regular reports on the state of regional seas and coastal areas; (iv) assisting in developing the capability of countries gradually to assume full technical and financial responsibility for regional seas programmes; and (v) effectively applying the regional legal agreements relating to the protection of the marine environment;

(b) The global marine environment: the UNEP strategy is centred on (i) integrating the national and regional monitoring and assessment programmes for coastal development and pollution abatement into a globally co-ordinated effort; (ii) assisting in the formulation of a feasible integrated global ocean monitoring programme; and (iii) helping to establish a co-ordinated data processing mechanism based on the Global Environmental Monitoring System;.

(c) Living marine resources: UNEP will continue assisting international efforts aimed at the conservation, management and sustainable utilization of marine living resources. Emphasis will be placed on (i) the implementation of the Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals; (ii) an ecosystems approach to the management of other living marine resources; and (iii) an assessment of the environmental impacts of coastal and marine developments of living marine resources with particular emphasis on aquaculture.

SUBPROGRAMME 5. LITHOSPHERE

(a) Objectives

16.50 The legislative mandate of the present subprogramme derives from resolution I of the Governing Council at its session of a special character of 1982, section III, paragraph 2 (d).

16.51 There are still serious gaps in our quantitative knowledge of the natural element cycling between different spheres of the Earth and the scale on which biogeochemical cycles are affected by human activities. The extraction of minerals and fossil fuels, whether on an industrial or a small scale, is threatening soils and ground and surface waters over great areas. The dumping of hazardous wastes is causing increased environmental hazards in developing countries. The use of geothermal resources, which could reduce the burning of fossil fuels, is limited to a very few countries.

16.52 The subprogramme is mainly research-oriented. It will continue to work through the UNESCO International Geological Correlation Programme, the Scientific Committee on Problems of the Environment and the International Geosphere-Biosphere Programme.

16.53 The objective of the subprogramme is therefore to maintain the life-supporting functions of the upper crust of the Earth, to achieve environmentally sound use of its mineral, water and thermal resources, and to ensure safe disposal of hazardous wastes.

(b) Course of action of the Secretariat

16.54 The approach taken is to support the integration of data from geology, oceanography, ecology, meteorology and chemistry and to work towards the application of scientific results in environmental management tasks. This will be done through the organization of meetings, workshops and training courses, as well as by creating awareness through relevant publications. Attention will also be given to environmentally sound exploitation of mineral and fossil fuels, protection and use of deep acquifers, safe underground disposal of hazardous wastes and to the development of geothermal energy for sustaining the development process.

16.55 During the period 1992-1997, UNEP, in co-operation with UNESCO, the Scientific Committee on Problems of the Environment and the International Geosphere-Biosphere Programme and other international and national bodies, will concentrate on (i) promoting the consideration of geological, hydrogeological and geophysical factors in land-use planning; (ii) supporting field studies on environmentally sound mineral resource exploitation; (iii) fostering the study of the interactions between key biogeochemical cycles and the environmental problems related to them; (iv) sensitizing decision makers to the need for policies regulating activities involving human interaction with the key biogeochemical cycles; (v) promoting exchange of technical experience in storage of hazardous wastes, and (vi) supporting information exchange on the use of geothermal energy through workshops and study visits.

SUBPROGRAMME 6. HUMAN SETTLEMENTS AND THE ENVIRONMENT

(a) Objectives

16.56 The legislative authority for the present subprogramme derives from resolution I of the Governing Council at its session of a special character of 1982, section III, paragraphs 2 (a) and (d); and Council decisions 11/7, paragraph 4 (c), 14/3, and 15/18.

16.57 Rapid urban growth, the uncontrolled expansion of slums and squatter settlements, and the inadequacy of sanitation, water supply and other basic services continue to pose a severe challenge, which many countries, especially in the developing regions, are unable to meet satisfactorily. Because the challenge of controlled and planned urban growth is not being met, the harmony that should exist between the man-made and the natural environment deteriorates as urban sprawl expands into prime agricultural land and the urban wastes continue to pollute the air, water and soil on which life depends.

16.58 The extent of death and destruction caused by disasters is increasing. The communities affected cannot cope alone and require immediate relief from national and international organizations. One effective means of reducing the adverse consequences of disasters is by ensuring that communities are prepared for them through organizational measures such as contingency plans for the evacuation of people, the provision of food, water and medical care, and early warning systems.

16.59 The objectives of the subprogramme are therefore:

(a) To promote environmentally sound planning and management of human settlements;

(b) To promote the implementation of environmentally based policies and measures for preparedness, prevention and mitigation of damage caused by natural and man-made disasters.

(b) Course of action of the Secretariat

16.60 The UNEP course of action for 1992-1997 consists of:

(a) Human settlements planning and management: the UNEP strategy will be carried out in close co-operation with the United Nations Centre for Human Settlements (Habitat) and WHO. The strategy includes (i) assessment of environmental conditions in human settlements; (ii) application of environmental guidelines for planning and managing human settlements in selected countries and the development of resource-friendly infrastructures for sustainable development; (iii) research, training and dissemination of information on environmentally sound human settlements planning and management; and (iv) demarcation of pilot low-waste spaces in selected densely settled areas;

(b) Community preparedness for natural and man-made disasters: in accordance with Governing Council decision 11/7, UNEP gives low priority to activities under this item. UNEP will continue to promote the adoption of environmentally based measures to further develop community preparedness and disseminate information in this regard.

SUBPROGRAMME 7. HUMAN HEALTH AND WELFARE

(a) Objectives

16.61 The legislative authority for the subprogramme is resolution I of the Governing Council at its session of a special character of 1982, section III, paragraph 2 (g) and (i), and section IV, and Council decisions 10/15, 10/16, 14/13, 14/27, 14/32 and 15/1, section (iv)(h).

16.62 The effects of environmental pollutants, in particular those caused by chemicals, are of increasing concern in all countries. Although industrialized countries generally have well developed programmes to assess and control the effects of pollution, most of the developing countries have no adequate programmes in place. A comprehensive approach to the management of pollutants is needed to cope with the pervasive nature of most of them.

16.63 Communicable diseases are major causes of the high rate of sickness, disability and death in developing countries. These diseases include acute diarrhoea, vector-borne parasitic diseases such as malaria, schistosomiasis, filariasis and trypanosomiasis, vector-borne viral diseases such as Japanese encephalitis and dengue, and zoonotic and food-borne diseases. Today, for example, over 2 billion people in developing countries are at risk of malaria infection; 200 million are infected with schistosomiasis. Further, in Africa alone 50 million are at risk with onchocerciasis and another 50 million are exposed to human sleeping sickness.

16.64 Progress in improving the quality of the working environment has been slow and uneven between countries at various stages of development and, within countries, between various branches and categories of workers. This is primarily because of the absence in many countries of a general policy for improving the working environment, as an integral part of the national development strategy, in a context of rapid technological changes.

16.65 The subprogramme addresses three areas, chemical, physical and biological safety, and will be implemented in the main by the relevant United Nations agencies, ILO, the United Nations Children's Fund (UNICEF), FAO and others. The UNEP role will be to provide the necessary catalysis and to act as co-ordinator during programme implementation, acting through the existing mechanisms, mainly the ILO/UNEP/WHO International Programme on Chemical Safety and the FAO/UNEP/WHO Panel of Experts on Environmental Management for Vector Control.

16.66 The objectives of the subprogramme are therefore:

(a) To enhance national capabilities to assess and deal with hazards of environmental pollution;

(b) To enhance national capabilities for environmental control of disease agents of chemical and biological origin in selected developing countries;

(c) To strengthen the capacity of countries to design and implement policies and programmes for the improvement of the working environment.

(b) Course of action of the Secretariat

16.67 The course of action for 1992-1997 will include:

(a) Hazards of pollution: UNEP will continue to work closely with other United Nations agencies and international organizations, in particular in the context of the International Programme on Chemical Safety in implementing the following activities (i) assessment and evaluation of the potential health and environment hazards of selected pollutants; (ii) wide dissemination of evaluated information on such hazards; (iii) support for strengthening the capacity of national institutions and personnel for assessment, prevention and control of pollution hazards at the country level;

(b) Environmental aspects of communicable diseases: (i) Promoting education, training and transfer of acquired knowledge; (ii) facilitating studies on the epidemiological surveillance of communicable diseases; (iii) facilitating studies on the biology, ecology and behaviour of disease-causing agents of chemical and biological origin; (iv) undertaking field demonstrations of ecologically sound methods and strategies for pest and vector control; (v) strengthening national capabilities for environmental management of carriers of disease-causing agents; and (vi) developing and testing, wherever feasible, site-specific guidelines for the control of disease-causing agents for wider application at the national or regional levels;

(c) The working environment: UNEP strategy will be centred mainly on co-ordinating activities undertaken by the United Nations system aimed at the prevention of occupational accidents and diseases and the improvement of the physical, mental and social well-being of workers.

SUBPROGRAMME 8. ENERGY, INDUSTRY AND TRANSPORTATION

(a) Objectives

16.68 The legislative authority for the present subprogramme derives from General Assembly resolution 44/229; and Governing Council decisions 13/1, section II, subsection 1, 13/17, 14/13, 15/37 and 15/39.

16.69 All energy systems have impacts on the environment. In developing countries, the most pressing problem is the unsustainable use of biomass resources leading to deforestation and desertification. Half a billion people are also affected by the indoor air pollution from cooking stoves. In the industrialized countries, problems arise from, inter alia, the continued use of fossil fuels and include the acidification of the environment and climatic change. Many impacts have transboundary or global effects that complicate their management. The comparison of the risks posed by different energy systems is difficult. The problem to be solved, which underlies all the above, is the lack of full integration of environmental considerations into energy policy and planning.

16.70 The problems of reducing the environmental impact of industry, including transportation and tourism, and covering the working environment, are world wide. The large body of scientific and technological information on environmental protection in various branches of industry is not yet sufficiently applied in practice. Often national economic policies fail to give due priority to environmental protection.

16.71 The environmental impact of transportation systems extends well beyond populated areas, affecting many ecosystems and significantly influencing the use of natural resources. Transportation is a major consumer of oil and contributes heavily to air pollution and climate change. Appropriate environmental measures are required in all sectoral activities that call for transport development.

16.72 Consequently, the main objectives of the Secretariat during the period in question are to integrate increasingly the management of the environmental impacts of the production and use of energy, industrial activity and transportation into policy and planning, to strengthen national policies, institutions and capabilities for environmentally sound development in the energy, industry, transportation and tourism sectors, to promote low-pollution and low-resource technologies and conversion systems, particularly in developing countries, and to enhance the working environment of employees.

16.73 The above objectives will be addressed in co-operation with other United Nations agencies such as the International Atomic Energy Agency (IAEA), United Nations Industrial Development Organization (UNIDO), World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO) and International Labour Organisation (ILO). The focus of the strategy during the period in question will be the development of methodologies and guidelines to be used by national Governments, and also directly by the energy, industry, transportation and tourism sectors, to integrate environmental considerations into policy and planning.

16.74 The more specific objectives of the subprogramme are:

(a) To encourage the integration of environmental considerations in the planning, production and use of energy;

(b) To integrate environmental considerations into industrial development and to strengthen national policies, institutions and capabilities for managing industrial activities in a sustainable way;

(c) To promote the definition of environmental guidelines to be applied to the formulation of national and regional transportation plans and to help facilitate the reduction of negative environmental health impacts of transport systems, especially urban transport systems.

(b) Course of action of the Secretariat

16.75 The course of action for 1992-1997 will include:

(a) Energy and environment: (i) developing methodologies and guidelines to integrate environmental considerations into national energy policy, planning and development, at both the technical and the institutional levels; (ii) making available information on the environmental impacts and risks of different energy systems and guidelines for their comparative assessment, management and conservation; and (iii) supporting field projects to demonstrate that energy can be provided and used in environmentally sound ways, particularly the ways of rational use of energy;

(b) Industry and environment: (i) fostering discussions related to environmental management of industry among the parties involved - Governments, industry, international institutions, trade and workers' organizations, employees and the general public; (ii) co-ordinating the preparation of technical publications on environmental management in the industrial sectors of greatest importance to developing countries; (iii) promoting the application of UNEP guidelines for environmentally sound management of industry; (iv) increasing the capacity of the existing information system on industry and environment in particular through networks of experts; and (v) providing technical assistance, training, information exchange and use of environmental audits, as well as disseminating case-studies and environmental audits;

(c) Transportation: (i) promoting the preparation of guidelines for the formulation of national and regional transportation plans, including environmental impact assessment; and (ii) disseminating information about the effects of transportation systems on human health and on the environment.

SUBPROGRAMME 9. PEACE, SECURITY AND THE ENVIRONMENT

(a) Objectives

16.76 The legislative authority for the present subprogramme derives from resolution I of the Governing Council at its session of a special character in 1982, section III, paragraph 2 (j); and Council decision 14/13.

16.77 The continued increase in the production, stockpiling and risk of use of weapons of mass destruction and the development of new types of chemical and bacteriological weapons not only poses a major threat to the environment and even to life on Earth, but also competes for limited resources that could be used for constructive purposes. The central goal of the subprogramme is to promote environmental security as a basis for sustainable development. Implicit in this perception is the recognition that conflicts may arise not only from military threats, but also from environmental degradation and the misdirection of scarce resources or misuse of shared ones.

16.78 The United Nations will continue to be the main universal body for the maintenance of a reliable security system at the global level. In particular, UNEP, in collaboration with other departments and units of the United Nations and non-governmental organizations, will continue to assess the environmental consequences of the arms race and regional armed conflicts with a view to contributing to the strengthening of peace and security through the dissemination of appropriate information.

16.79 The objective of the subprogramme is therefore to increase governmental and public awareness of the environmental impact of military activities and the arms race.

(b) Course of action of the Secretariat

16.80 The course of action for 1992-1997 includes:

(a) Studies of the environmental consequences and impact of regional or local conflicts;

(b) Dissemination of information to Governments, non-governmental organizations and the public at large on the impact of the arms race on the environment, including the depletion or wasteful use of natural resources;

(c) Dissemination of information on the impact of environmental deterioration on national, regional and global security.

SUBPROGRAMME 10. ENVIRONMENTAL ASSESSMENT

(a) Objectives

16.81 The legislative authority for the present subprogramme derives from General Assembly resolutions 37/137, 38/149, 39/209, 44/207, 44/224, 44/226 and 44/229; Resolution I of the Governing Council at its session of a special character in 1982, section IV, paragraph 2 (a) (iv); and Council decisions 13/1, section II, subsection 2, 14/18, 14/19, 14/24, 14/27, 14/30, 14/32, 15/1, 15/28-15/30, 15/33, 15/38 and 15/40.

16.82 A global environment assessment programme, Earthwatch, conceived in 1972 at Stockholm, is one of the main pillars of the Action Plan for the Human Environment. The Stockholm Declaration charged Earthwatch with reducing ignorance about the environment and providing the knowledge on which sound environmental management must be based. Earthwatch is at present an internationally financed global system of facilities and services to study the interaction between humanity and its environment and to determine the state of the environment. Without

international co-ordination, environmental assessments would be haphazard and ad hoc, and environmental management actions would be misguided or based on inadequate information.

16.83 Environment and resource data on the extent and seriousness of environment problems, as well as on changes occurring in ecological systems and the effect of those changes on the human community, are required to adjust current or proposed environmental management activities. UNEP co-ordinates the collection, monitoring and assessment of selected environmental variables at global and regional levels and distributes this information world wide through: (i) INFOTERRA, which provides a query-response service through the international network of environmental information sources; (ii) the International Register of Potentially Toxic Chemicals, which operates a global information exchange network to provide information and data on chemicals and their effects on health and the environment through computerized central data files, a query-response service and technical publications; and (iii) the Global Environmental Monitoring System, which operates its Global Resource Information Database as a computerized data management system making use of geographical information system technology to convert analysed environmental data and assessments into information useful for management and planning.

16.84 Information is required on the extent and seriousness of environmental problems and changes occurring in various ecological systems and how these changes affect human welfare. Sources of information for assessments vary from ground stations to satellite sensors. Comprehensive assessments, including socio-economic and political considerations, must be undertaken, relevant techniques developed and the means secured to extend and co-ordinate data-gathering systems and monitoring networks.

16.85 Environmental monitoring activities are executed through the technical arms and national machineries of United Nations specialized agencies, such as FAO, WHO and WMO, and intergovernmental organizations such as IUCN and the International Livestock Centre for Africa (ILCA). In addition, close liaison will be established with the ICSU International Geosphere-Biosphere Programme, particularly with respect to the harmonization of environmental data and integrated monitoring of the biosphere.

16.86 The objective of the subprogramme is therefore to accumulate reliable and comparable scientific and technical information about environmental issues and to develop and improve means of collecting, storing, retrieving and processing such information in a way that will make it readily available to decision-makers and specialists.

(b) Course of action of the Secretariat

16.87 The course of action for 1992-1997 includes:

(a) The International Environmental Information System (INFOTERRA) will (i) promote the utilization of information services globally and the use of information-handling facilities to improve storage, retrieval and transmission of environmental information; (ii) strengthen the networks of special sectoral sources and regional service centres for the provision of substantive information in priority environmental fields; (iii) strengthen the network of national focal points through sub-networking and technical assistance; and (iv) promote and assist

the establishment of national environmental information systems, especially in developing countries;

(b) The International Register of Potentially Toxic Chemicals will (i) expand its network and intensify the flow of scientific, technical and regulatory information on a steadily increasing number of chemicals in common use; data bases on chemicals currently being tested for toxic effects, as well as existing and planned national chemical reviews, will be expanded and continue to be operated jointly with the WHO/UNEP/ILO International Programme on Chemical Safety; the Register will be used increasingly for hazard assessment and risk evaluation of chemicals both nationally and internationally; (ii) assist Governments in establishing national information systems on chemicals compatible with the Register, thereby facilitating the exchange of information on chemicals in international trade; (iii) apply the London Guidelines and the Prior Informed Consent Procedure, and strengthen all the technical and legal means possible for the exchange of information on banned or severely restricted chemicals; (iv) support implementation of a convention on the control of transboundary movements of hazardous wastes and their disposal and, if authorized, support the development and adoption by States of an international instrument on information exchange on chemicals; and (v) continue to review and update a report on selected environmentally harmful chemical substances, processes and phenomena of global significance;

(c) The Global Environmental Monitoring System will (i) co-ordinate monitoring, resource data management and the preparation of comprehensive assessments of selected environmental problems to be used for environmental management; these assessments will cover, inter alia, the status of global forests, soil loss, selected chemicals and climatic change; (ii) contribute to strengthening the institutional capabilities of developing countries for monitoring, assessment and data management, promote training of personnel from developing countries for these purposes; (iii) encourage and co-ordinate the establishment of geographical information systems compatible with the Global Resource Information Database (GRID) within the United Nations system; (iv) develop a network of interconnected regional and national "GRID nodes" serving as data exchange centres. There are currently three regional GRID nodes (Nairobi, Bangkok and Geneva) and a national node in Aendal (Norway). The establishment of a national node in the United States of America is being discussed. It is expected that by 1997 six operational GRID regional nodes will be established, linked by telecommunications and serving as regional or sectoral data exchange and training centres; (v) produce state-of-the-environment reports on topics decided upon by Governments at sessions of the Governing Council; and (vi) give advice and assistance to developing countries for the preparation of national state-of-the-environment reports, with conclusions for national medium- and long-term environmental planning.

SUBPROGRAMME 11. ENVIRONMENTAL MANAGEMENT MEASURES

(a) Objectives

16.88 The legislative authority for the present subprogramme derives from General Assembly resolutions 3436 (XXX), 44/207, 44/226, 44/227 and 44/229; resolution 1 of the Governing Council at its session of a special character in 1982, section IV, paragraph 1 (b); and Council decisions 10/21, 11/7, part II, section B, 12/14, 13/18, 14/13, 14/20, 14/22, 14/25-14/31, 15/2, 15/14, 15/30-15/37, 15/39 and 15/41.

16.89 The methods and procedures that would allow the environment to be considered systemically in economic and social policies, plans, programmes and projects, at both the decision-making and implementation phases, are not widely available, known or applied. Patterns of trade, international investments, economic structural adjustments and development aid continue to be insufficiently geared to promoting sustainable development.

16.90 Laws anchor the development of national, regional and global environmental management for sustainable development. There is already a growing list of conventions covering environmental issues, including the seas, wildlife, the ozone layer and transfrontier movements of hazardous wastes; international legal principles and guidelines have been developed on other important environmental issues, such as environmental assessment and chemicals in international trade. In many areas, additional work during the medium-term plan period would be undertaken where authorized by the Governing Council. Such areas could include the following: (a) global climate change; (b) preservation of biological diversity; (c) environmental emergencies; and (d) environmental impact assessment. Efforts should also be made to encourage adherence to and effective implementation of international environmental agreements, such as the recently adopted Montreal Protocol on Substances that Deplete the Ozone Layer.

16.91 The objectives of the subprogramme are therefore:

(a) To develop and promote the application of methods and procedures for integrating environmental considerations into the design and implementation of social and economic policies, plans and programmes, to elucidate environmental effects of socio-economic policies and practices and development aid, and to promote consideration of the environment in international co-operation for development;

(b) To promote international and national environmental law through the development of legal instruments, including agreements and treaties, guidelines and goals and principles in priority areas, and through the compilation of factual information on international and national environmental law and administration.

(b) Course of action of the Secretariat

16.92 The course of action for 1992-1997 includes:

(a) Environmental aspects of development planning and co-operation: (i) advancement, dissemination and application of knowledge to improve development policy formulation, planning, decision-making and administration, with particular attention to analytical methods, including environmental impact assessment, social cost-benefit analysis, integrated physical planning and environmental accounting; (ii) extension and strengthening of relevant training for decision-makers and administrators; (iii) strengthening of institutional capacities in the developing countries through the provision of technical co-operation; and (iv) reviews and analyses of the programmes and exchange of information among development assistance and technical co-operation institutions to encourage the integration of environmental objectives into their programmes, keeping in view the Environmental Perspective to the Year 2000 and Beyond;

(b) Environmental law: (i) development of international legal instruments, including agreements and treaties, guidelines and principles in agreed priority areas; (ii) peaceful settlement of ecological disputes; (iii) compilation of factual information on international and national environmental law and administration; and (iv) provision of support to developing countries to enact proper environmental legislation and establish or strengthen existing administrative machinery.

SUBPROGRAMME 12. ENVIRONMENTAL AWARENESS

(a) Objectives

16.93 The legislative authority of the present subprogramme derives from Governing Council decisions 11/7, part three, sections A and B, 12/15, 12/16 A, 13/19-13/22, 14/13 and 15/12.

16.94 There is widespread environmental illiteracy and a lack of trained environmental specialists to promote sustainable development. Public participation in environmental protection and improvement depends upon their awareness of the environmental problems and possibilities and of the effects of environmental changes on their well-being and those of their life-styles on the environment.

16.95 The main purpose of environmental training is to improve the understanding of and strengthen the skills in environmental assessment and management, in collaboration with the technical parts of UNEP concerned. The UNEP training policy emphasizes the strengthening of relevant skills in the developing countries, with particular attention being given to the development of materials, selection of trainees and follow-up of the training. UNEP implements its awareness-building activities in collaboration with, inter alia, UNESCO, ILO, UNIDO and the Department of Public Information of the Secretariat.

16.96 The objectives of the subprogramme are therefore:

(a) To strengthen further the incorporation of environmental education into all levels of educational systems; to assist Governments in sustainable natural resources development, land use and environmental protection through the provision of interdisciplinary training of key personnel; to help Governments ensure public participation in the design and implementation of environmental management activities;

(b) To match the production of information outputs appropriately and dynamically to outside demand and to the development of the technical programme, and to incorporate the information needs of outreach constituencies, including non-governmental organizations, into public awareness programmes so as to maintain and heighten public awareness and concern on environmental issues;

(c) Through the two objectives mentioned above, to prepare communities and nations to face the environmental challenges of the twenty-first century, particularly problems of climate change, freshwater resources, pollution of oceans, desertification and soil degradation, toxic wastes and conservation of biological diversity within the context of the population-environment relationship and with the ultimate aim of achieving sound and sustainable development for all.

(b) Course of action of the Secretariat

16.97 The course of action for 1992-1997 includes:

(a) Environmental education and training: generally within the International Environmental Education Programme, UNEP will (i) continue to promote general environmental education at the national, regional and global levels specially for the benefit of young people, in or out of school; (ii) strengthen and update the incorporation of an environmental dimension into all general university education and into all training courses for professionals, workers, employers, planners, decision-makers and other appropriate target groups; (iii) organize specialized training courses for the management of natural resources with a view to achieving sustainable development, with emphasis on techniques suitable for the biophysical, economic and educational realities of developing countries, within available resources; and (iv) support interdisciplinary study and training courses for land use and natural resources development managers and team leaders.

(b) Public information: (i) develop communications programmes to deal with priority issues currently facing UNEP (climate change, hazardous wastes, toxic chemicals, tropical deforestation, loss of biological diversity, protection of oceans and coastal areas, protection of freshwater resources, land degradation, including desertification); (ii) target information material to specific national, regional and international audiences, with special emphasis on reaching the general public and enlisting its support to deal with the above problems; (iii) expand co-operation with non-governmental organizations, the media and outreach groups with a view to reaching a wider audience; and (iv) encourage and assist regional information programmes to foster awareness of critical environmental problems and increase UNEP's visibility.

SUBPROGRAMME 13. TECHNICAL AND REGIONAL CO-OPERATION

(a) Objectives

16.98 The legislative authority of the present subprogramme derives from General Assembly resolutions 33/88, 36/192, 42/187, paragraph 14, and 42/189 B; and Governing Council decisions 10/4, 10/26, 11/7, part eight, 11/8, 11/9, 12/16 C, 13/6, 14/1 C, 14/21, 15/7, paragraph 2, 15/14, 15/15, paragraph 6, 15/17 and 15/23 C, paragraph 3.

16.99 Most developing countries lack the resources (human, financial and organizational) to handle their most pressing environmental problems. Some of these problems are of a regional nature and also need to be addressed. To do this it is necessary to co-ordinate aid from different financial sources, encouraging the development of programmes and projects at the national level and/or common to several countries and the participation of developing countries in international environmental forums, with a view to complementing their capacities in the advancement of environmentally sound sustainable development.

16.100 Given its catalytic and co-ordinating nature, the Programme's work in the field of technical and regional co-operation has largely involved responding to the needs of countries as identified by regional offices of UNEP: requests for technical expertise, training support and advisory services. In addition, UNEP has sought to strengthen co-operation on environmental matters among countries at regional and subregional levels. Regional solidarity and co-ordination on

environmental matters have increased considerably as a result of this, with the adoption of agreed priorities, plans of action and programmes for environmental protection. The clearing-house facility of UNEP, established by the Governing Council with the purpose of mobilizing additional resources to enable developing countries to deal with their most serious environmental problems, has also been active in supporting those initiatives.

16.101 The objective of the subprogramme is therefore to strengthen the capacity of developing countries to deal with serious environmental problems and achieve environmentally sound and sustainable development.

(b) Course of action of the Secretariat

16.102 Implementation of the subprogramme depends upon availability of extrabudgetary resources both in the environment fund and to the clearing-house mechanism. The course of action for 1992-1997 includes:

(a) To facilitate the participation of developing countries in international environmental forums and programmes;

(b) To promote the formation of skills through training, workshops, seminars and courses of longer duration;

(c) To assist developing countries in identifying and evaluating their most serious environmental problems and in formulating programmes and projects for their solution, including the requisite institutional set-up;

(d) To assist developing countries to obtain financial resources from donors for programme and project implementation;

(e) To continue supporting the United Nations Sudano-Sahelian Office as a joint venture with the UNDP to assist the countries in the region in the implementation of the Plan of Action to Combat Desertification;

(f) To provide assistance to the following regional and subregional environmental programmes (i) the Cairo Programme for African Co-operation; (ii) the Latin American and the Caribbean regional environmental programme; (iii) the Plan of Action of the Arab Ministerial Conference on Environment and Development; (iv) the West Asia environmental action plan; and (v) the subregional environmental programmes of the Association of South-East Asian Nations (ASEAN), the South Asia Co-operative Environment Programme (SACEP) and the South Pacific Regional Environmental Programme (SPREP).

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PROPOSED MEDIUM-TERM PLAN FOR THE PERIOD 1992-1997*

MAJOR PROGRAMME IV. INTERNATIONAL ECONOMIC CO-OPERATION FOR DEVELOPMENT

Programme 17. Science and technology for development

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* The present document contains programme 17 of the proposed medium-term plan for the period 1992-1997. The complete medium-term plan will subsequently be issued in final printed form as Official Records of the General Assembly, Forty-fifth Session, Supplement No. 6 (A/45/6/Rev.1).

PROGRAMME 17. SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

A. Programme

1. General orientation

17.1 The general mandate for this programme derives from General Assembly resolution 34/218 of 19 December 1979, in which the Assembly endorsed the Vienna Programme of Action on Science and Technology for Development and established the Centre for Science and Technology for Development as an organizationally distinct entity of the United Nations Secretariat.

17.2 The programme on science and technology for development is designed to enable interested Member States, particularly developing countries, to achieve increased autonomy in decision-making in science and technology during a period of rapid and continuing change. The broad objective will be to assist Member States in assessing policy issues and options and in developing initiatives in science and technology in accordance with their needs, aspirations, resources and priorities.

17.3 Integration of science and technology into the process of socio-economic development also means that countries must acquire the capability to utilize and adapt rapidly changing technologies according to their priority development needs. The international community must contribute to that effort through increased support for the development of endogenous scientific and technological capabilities, both individual and institutional, at the national and regional levels.

17.4 The main elements of this programme evolve from the new direction given by the Intergovernmental Committee on Science and Technology for Development at its eighth session and reaffirmed at subsequent sessions, namely: (a) to transform the Intergovernmental Committee's general and global recommendations into country-specific and region-specific activities; (b) to strengthen the Advance Technology Alert System (ATAS), including the selection of substantive themes from technology-laden topics of the agenda of the General Assembly and analysing them through the ATAS approach and the creation or enhancement of the capacity of developing countries in assessing the implications of new and emerging sciences and technologies on development; (c) to provide innovative approaches to co-ordination of activities of the United Nations system in science and technology; and (d) to facilitate access by developing countries to information on science and technology.

17.5 In reaffirming the validity of the Vienna Programme of Action, the General Assembly, by its resolutions 44/14 A to E of 26 October 1989, provided guidelines for international co-operation in the application of science and technology for development. The Assembly considered that science and technology should be one of the major components in the deliberations of the special session of the General Assembly in 1990 devoted to international economic co-operation, in particular to the revitalization of economic growth and development in the developing countries, the Ad Hoc Committee of the Whole for the Preparation of the International Development Strategy for the Fourth United Nations Development Decade, the Second United Nations Conference on the Least Developed Countries and the United Nations Conference on Environment and Development.

17.6 More concerted efforts in the future to ensure that science and technology penetrate the mainstream of economic and social development would therefore be in consonance with the General Assembly's view of the role of science and technology for the improvement of the quality of life and the eradication of poverty.

17.7 The process of socio-economic development in the coming decade will be profoundly affected by recent and anticipated progress in scientific and technological innovations. The rapid developments in micro-electronics, bio-technology, energy and materials, and the new and emerging sciences and technologies in general are bound to have a significant and pervasive impact not only on various production sectors but also on the structure of society and the way of life. They will intensify the challenge and the opportunity to harness effectively science and technology to meet basic as well as industrial development needs in national economies and will constitute one of the most critical elements of development planning and execution. They will necessitate accelerating the development of endogenous technological capabilities, upon which United Nations activities must properly be focused. Appropriate mobilization of human and financial resources at the national, regional and international levels is needed to achieve the main objective of the Vienna Programme of Action. Policy makers, as never before, will be faced with a challenge and opportunity to make effectively reasonable and independent decisions on science and technology to meet critical developmental needs. It is essential that United Nations activities in science and technology emphasize endogenous capacity-building in order to assist Member States to meet those challenges and opportunities.

17.8 Endogenous capacity-building of developing countries in science and technology lies, among other things, in the capacity of those countries to choose, acquire, adapt, utilize and innovate technologies, including new ones, through institutional mechanisms for technology assessment in the areas of priority action.

17.9 Consequently, international co-operation to foster the endogenous capacity-building of developing countries, that is, their autonomous decision-making in science and technology, must be oriented to the demand-driven priorities in order to support their efforts in economic growth and development, and should emphasize management of technology in order to cope with technological change and promote technological innovation.

2. Overall strategy

17.10 The Centre for Science and Technology for Development of the Secretariat is responsible for the elaboration and implementation of this programme. Its main task is to assist the Director-General for Development and International Economic Co-operation in fulfilling the responsibility assigned to him in the Vienna Programme of Action, particularly in providing the necessary substantive support to the Intergovernmental Committee on Science and Technology for Development and in co-ordinating activities at the secretariat level related to science and technology within the United Nations system. In view of the inter-sectoral character of science and technology, there is a close relationship between this programme and those carried out by organizational units involved in science and technology-related activities, including the United Nations Conference on Trade and Development, the regional commissions, the Department of International Economic and Social Affairs and the Department of Technical Co-operation for Development of the Secretariat and the United Nations Environment Programme, as well as between the

United Nations programme on science and technology and science and technology-related programmes of organizations of the United Nations system.

17.11 The Centre assists the Intergovernmental Committee in providing policy guidelines for the organizations of the United Nations system in regard to scientific and technological activities and monitoring these activities within the system, in the implementation of the Vienna Programme of Action. The mechanism through which such co-ordination is effected is the Task Force on Science and Technology for Development of the Administrative Committee on Co-ordination (ACC).

3. Subprogramme structure and priorities

17.12 The subprogramme structure proposed under this programme follows in essence that presented in the medium-term plan for the period 1984-1989, as revised and extended to 1991, with the exception of subprogramme 1, Policy analysis, research and the mobilization of resources for science and technology for development. Further experiences in the implementation of the programme related to endogenous capacity-building and further developments in discussions at the ninth and tenth sessions of the Intergovernmental Committee on Science and Technology for Development suggest that it would be more appropriate to change the title of subprogramme 1 so that it better reflects the thrust of the activities undertaken under the subprogramme. Consequently, the four subprogrammes proposed under the programme are as follows:

Subprogramme 1: Endogenous capacity-building and resource mobilization

Subprogramme 2: Advance Technology Alert System (ATAS)

Subprogramme 3: Co-ordination and harmonization of activities of the United Nations system on science and technology

Subprogramme 4: Information services

17.13 The main activities are likely to continue to be in subprogrammes 1, 2 and 3. Of these three subprogrammes, subprogramme 1 is designated as highest priority. However, information services, while important in the short-run in the United Nations effort to assist Member States in the strengthening of their science and technology information system, will in the long run have to be addressed by Member States themselves. Consequently, subprogramme 4 will gradually be accorded lowest priority.

B. Subprogrammes

SUBPROGRAMME 1. ENDOGENOUS CAPACITY-BUILDING AND RESOURCE MOBILIZATION

(a) Objectives

17.14 The legislative authority for this subprogramme derives from General Assembly resolutions 34/218, section II, paragraph 5, and section III, paragraph 3; 37/244, section II, A and C; 41/183, 42/192 and 44/14 B; and Intergovernmental Committee resolutions 6 (V), 4 (VIII), 6 (VIII), 6 (IX), and 2 (X).

17.15 The 10-year experience since the 1979 Vienna Conference has underlined the need to move away from the narrow concept of endogenous capacity as merely the development of an ample stock of scientists, technologists and institutions, towards the establishment of an effective linkage between science and technology and overall national development objectives. Activities in endogenous capacity-building in science and technology are designed to assist Member States in conceptualizing, planning and implementing national policies that seek to identify factors that influence their endogenous science and technology capabilities in the context of their priority needs, aspirations, resource endowments and development objectives. The contribution of the United Nations system, in particular, could therefore be more usefully aimed at the main components of endogenous capacity-building: (a) the ability to conduct effective national dialogues among partners (stakeholders) in the development process for the formulation of a portfolio of initiatives, ranked by priority, in science and technology for development; and (b) the capacity to assess effectively the implications of technology, with special emphasis on new and emerging sciences and technologies.

17.16 The approach currently utilized by the Centre for Science and Technology for Development and interested organizations of the United Nations system in initiating experimental endogenous capacity-building processes in a few countries has given some first indications of accomplishing the objective of promoting endogenous capacity. The participation in national dialogues of stakeholders in the development process has proved to be an essential element in establishing a broad area of consensus in identifying by priority science and technology initiatives for development. This broad participatory decision-making process should bring about sustainable policies for the future and should facilitate the implementation of these policies, in the face of the inevitable fluctuations over time in the national and international environments.

17.17 In the light of the experience gained, endogenous capacity-building activities of the Centre during the course of the forthcoming medium-term plan period will continue to reflect the directive of transforming the general recommendations of the Committee into a country-specific context to meet the interests of individual Member States and the need for international assistance in critical areas of science and technology for their development. The key feature of the subprogramme is the consensus-building dialogue process among stakeholders in the development process. Based on recommendations to be made by national institutions of the countries concerned, policies and programmes would address topics of relevance to national development, which would be conducive to the development of a portfolio of initiatives for priority investment in science and technology.

17.18 In the decade following the Vienna Conference, it has become increasingly clear that no serious efforts at developing or strengthening endogenous capability in science and technology would be possible without the concerted mobilization of resources - financial, human and institutional - at the national level, supplemented, where possible, by assistance at the international level. Concerted efforts at the international level, including those by the United Nations Development Programme (UNDP), the World Bank, the regional development banks and other international development aid agencies, will be required. The programme of the Secretariat will seek to achieve this objective by providing, on the basis of the outcome of the endogenous capacity-building projects, the required support in the implementation of the portfolio of initiatives ranked by priority. The attainment of the objective would require the mobilization of institutional, human,

financial and other resources, including co-operation with the World Bank and the regional development banks, in widening the windows of science and technology in their programmes, as well as with the United Nations Fund for Science and Technology for Development, UNDP and other multilateral arrangements.

17.19 The involvement of the United Nations in endogenous capacity-building, however, should not be an endless process; it should rather aim at enabling the Intergovernmental Committee on Science and Technology for Development to come to a general formulation of sets of recommendations for consideration by Member States that need to develop their own endogenous capacity-building programmes to meet their specific needs.

17.20 This subprogramme will therefore aim at supporting the Intergovernmental Committee in its role of strengthening the endogenous scientific and technological capacities of Member States, in particular the developing countries, of promoting the mobilization of financial and other resources through the coalition of resources to contribute to the full integration of science and technology in national development, of promoting the optimum mobilization of resources of the United Nations system and other sources to attain the objectives of the Vienna Programme of Action, and of providing specific policy guidance and priorities for activities of the United Nations Fund for Science and Technology for Development within the framework of the Vienna Programme of Action.

(b) Course of action of the Secretariat

17.21 Activities under this subprogramme will be oriented in a way that would respond effectively to General Assembly resolutions 44/14 A to E. Accordingly, the Centre will undertake the following activities:

(a) Undertake pilot studies for endogenous capacity-building, at the invitation of interested Member States, in up to 10 developing countries to assist national efforts towards effective utilization of science and technology for development, including blending of technologies in small and medium-sized enterprises, subject to review by the Intergovernmental Committee within a three-year period, with a view to determining under what conditions these programmes could be continued with minimal involvement of the Centre, the most critical component of which are the series of national dialogues of stakeholders in national development, including policy makers and planners, bankers, scientists and technologists, entrepreneurs and others, designed to facilitate the identification of prioritized initiatives in science and technology for development;

(b) Provide follow-up to recommendations of the Intergovernmental Committee on priority areas, such as specific science and technology programmes for Africa;

(c) Continue to provide substantive secretariat support to the Advisory Committee on Science and Technology for Development, its task forces and panels of specialists;

(d) Continue to undertake studies, in co-operation with the Advisory Committee, on substantive themes to be considered by the Intergovernmental Committee;

(e) Assist Member States in the conceptualization of science and technology policy issues and options in the mobilization of human and financial resources, including fiscal incentives and disincentives and training and education;

(f) Co-operate with the United Nations Fund for Science and Technology for Development, the regional development banks, international and, as appropriate, national funding agencies in the launching of pilot studies on endogenous capacity-building; and

(g) Co-operate with UNDP, as appropriate, in the conceptualization of the indicative planning figure programme contents towards more effective integration of endogenous capacity-building in science and technology for development.

SUBPROGRAMME 2. ADVANCE TECHNOLOGY ALERT SYSTEM (ATAS)

(a) Objectives of the subprogramme

17.22 The legislative authority for this subprogramme derives from General Assembly resolutions 34/218, section II, paragraph 5 (g), section III, and 44/14 E; Intergovernmental Committee resolutions 4 (VI), paragraph 1, 4 (VII), paragraph 73, decision 1 (VII), resolution 1 (IX) I, paragraph 1 and 2 (X), paragraph 10.

17.23 No serious attempt has been made in the past to include technology assessment as part of the process of endogenous capacity-building in science and technology. Recent trends have confirmed that technology assessment capacity should become an integral part of endogenous capacity-building, as the ability to choose among technologies, including new and emerging sciences and technologies, would presume the ability to assess the implications of those technologies on development.

17.24 The rapid pace of market penetration of new and emerging technologies, such as microelectronics, biotechnology, materials and new energy technologies, has made it even more necessary now to provide ways and means of assisting policy makers not only in their awareness of the impact of such technologies on national developments, but also in their capacity to assess those technologies and to find appropriate options in accordance with national and global needs, aspirations translated into development objectives, priorities and resources.

(b) Course of action of the Secretariat

17.25 Bearing in mind the fact that from 1989 onwards the choice of substantive themes for analysis by the Intergovernmental Committee would be based on the relevance of science and technology to the agenda of the General Assembly, and that it would be analysed through the ATAS approach, the Centre would undertake the following activities:

(a) Provide support to the Intergovernmental Committee in its role of initiating arrangements for the early identification and assessment of new scientific and technological developments that may positively or adversely affect the development process for strengthening the endogenous scientific and technological capacities of the developing countries (the Centre's role in this respect would be similar to the role that the Centre already plays in national endogenous capacity-building dialogues, engaging the expertise of the United Nations system);

(b) Serve as the focal point for technological assessment within the United Nations system and, where possible, for relations with Governments and non-governmental organizations concerning technological assessment activities in Member States;

(c) Provide policy guidance via the technology assessment approach on issues of topical interest in the General Assembly debate; and

(d) Facilitate access to available expertise and to increase the role of ATAS as a catalyst in technology assessment efforts through an informal technology alert network of technology assessment institutions.

17.26 Through the ATAS Bulletin and other means information relevant to both developed and developing countries on the impact of new and emerging technologies on development will be disseminated, concentrating on selected topics of particular relevance to the agenda of the General Assembly. Meetings on the regional and national application of, inter alia, materials technologies, energy technologies and space technologies will be organized.

SUBPROGRAMME 3. CO-ORDINATION AND HARMONIZATION OF ACTIVITIES OF THE UNITED NATIONS SYSTEM ON SCIENCE AND TECHNOLOGY

(a) Objectives

17.27 The legislative authority for this subprogramme derives from General Assembly resolutions 34/218, section II, paragraphs 3, 4 and 5, and section IV, paragraphs 1 to 5, 42/192 and 44/14 C; Economic and Social Council resolution 1987/79; Intergovernmental Committee resolutions 4 (VII), paragraphs 10 and 11, 1 (VIII), paragraphs 2 and 6, 4 (VIII), paragraph 1, 1 (IX) I, paragraphs 2 and 5, 4 (IX) and 2 (X).

17.28 The traditional approach to co-ordination of the activities of organizations of the United Nations system has tended to stress activities derived from desk studies and analyses of issues reviewing co-ordination activities. The contribution of organizations of the United Nations system towards the development and strengthening of endogenous capacity in science and technology for development, as recognized in the Vienna Programme of Action, would require effective monitoring and frequent assessment of their impact on national development.

17.29 The need to pursue co-ordination efforts at the country level has been emphasized by ACC. The emphasis of such co-operative efforts of organizations within the United Nations system will, at the country level, enhance the collective contribution of the United Nations to endogenous capacity-building in science and technology. The focus of such activities will be on new and emerging sciences and technologies and small- and medium-scale industries, and other areas as may be agreed upon by ACC under the policy guidance of the Intergovernmental Committee.

17.30 The objective of the subprogramme will be to assist the Intergovernmental Committee in strengthening the role of the organizations of the United Nations system in the integration of science and technology for development by providing policy guidelines for the harmonization of policies, to improve the linkages between the organizations towards co-ordinated implementation of the Vienna Programme of Action at the country level, and to monitor the science and technology activities and programmes of the organizations of the system with a view to optimum mobilization of resources to carry out the implementation of the Vienna Programme of Action.

(b) Course of action of the Secretariat

17.31 To that end, the Centre will assist the Intergovernmental Committee to formulate and implement guidelines for the harmonization of policies, plans and procedures of the organs, organizations and bodies of the United Nations system in regard to scientific and technological activities and to assist the Director-General for Development and International Economic Co-operation in the co-ordination at the secretariat level of science and technology activities within the United Nations system.

17.32 Decisions on policy guidelines on the activities of the United Nations system in science and technology will be implemented through (a) joint efforts with interested organizations in effective work programmes for enhancing the endogenous scientific and technological capabilities of Member States; (b) inter-agency country reviews, to be undertaken in co-operation with United Nations resident co-ordinators and interested organizations of the United Nations system; and (c) preparation of reports, in consultation with the ACC Task Force on Science and Technology for Development, on specific issues of co-ordination to be submitted to the Intergovernmental Committee for its consideration and decision.

SUBPROGRAMME 4. INFORMATION SERVICES

(a) Objectives

17.33 The legislative authority for this subprogramme derives from General Assembly resolution 43/218, section III, paragraph 3, and Intergovernmental Committee resolutions 2 (VII), 1 (IX) I, paragraph 2, and 2 (IX), paragraph 10.

17.34 Since the adoption of the Vienna Programme of Action, it has become imperative for developing countries to strengthen their science and technology information infrastructure to enable them to take advantage of the vast pool of information existing in developed as well as developing countries. In view of this rapid expansion, and, conversely, obsolescence of technological information, no Member State, developing countries in particular, could possibly become self-reliant in information needed for its development. Exchange of scientific and technological information between developed and developing countries, on the one hand, and among developing countries, on the other, is therefore a key element in devising a strategy for an effective and sound development of national infrastructure for science and technology information. This task would be facilitated if developing countries could gain speedier access to science and technology information sources, including those available within the United Nations system.

17.35 The objective of this subprogramme, therefore is (a) to facilitate access by interested Member States to scientific and technological information and to assist them in the conceptualization of policies towards enhancement of their science and technology information infrastructure; and (b) to continue to make available to Member States and organizations of the United Nations system information on progress in the implementation of the Vienna Programme of Action and other significant developments in science and technology.

(b) Course of action of the Secretariat

17.36 In implementing the activities under this subprogramme, Member States, particularly the least developed countries, will be provided with advisory services

in the conceptualization of science and technology information policy issues and options and with basic scientific and technological information literature. The quarterly publication of Update and media presentations, such as video, of successful experiences of Member States in the application of specific science and technology policy options for development will also be made available. The Centre will continue to develop and make available to Member States, upon request, directories of data bases available in Member States on science and technology activities of organizations within the United Nations system. Efforts will also continue to be made to establish contacts with science editors of leading professional journals and important international news organs to further disseminate work related to the implementation of the decisions of the Intergovernmental Committee. The Centre will co-operate with relevant non-governmental organizations, such as the Third World Academy of Science, the International Council of Scientific Union and national organizations, such as the American Association of Advance Science in the implementation of this subprogramme.

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MAJOR PROGRAMME IV. INTERNATIONAL ECONOMIC CO-OPERATION FOR DEVELOPMENT

Programme 18. Population

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* The present document contains programme 18 of the proposed medium-term plan for the period 1992-1997. The complete medium-term plan will subsequently be issued in final printed form as Official Records of the General Assembly, Forty-fifth Session, Supplement No. 6 (A/45/6/Rev.1).

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PROGRAMME 18. POPULATION

A. Programme

1. General orientation

18.1 The basic mandate for the present programme derives from Economic and Social Council resolution 3 (III) of 3 October 1946, in which the Council established the Population Commission. The mandate was expanded in General Assembly resolution 3344 (XXIX) of 17 December 1974, in which the Assembly affirmed the validity and importance of the World Population Plan of Action, adopted by the World Population Conference in 1974 at Bucharest. It was further expanded in General Assembly resolution 39/228 of 18 December 1984, in which the Assembly endorsed the report of the International Conference on Population, held in 1984 at Mexico City.

18.2 The primary objective of the programme is to facilitate the work of the Economic and Social Council, through the Population Commission, in the formulation of policy recommendations and in the substantive co-ordination of activities of the United Nations system in the field of population. To that end, the programme provides Member States, other intergovernmental bodies and their secretariats and the international community with reliable and timely information and analyses on population trends and policies, including population growth, fertility, mortality, internal migration and urbanization, international migration, the interrelationship between population and socio-economic factors and other issues that may arise and claim the attention of the United Nations and/or its Member States. The programme is also geared to improving the institutional capabilities of developing countries in dealing with population issues.

18.3 In the world today, population growth ranges from very high to very low levels, considered undesirable in many developing and developed countries. Fertility remains at the highest levels ever recorded in some regions; in others, it has stabilized at levels well above replacement and still in others it has fallen to unprecedented low levels, so low in some instances as to produce negative rates of population growth. Mortality remains unacceptably high in many countries, while in other countries overall mortality levels have fallen. Internal migration and urbanization are continuing at such a pace that it is expected that almost half of the world's population will reside in urban areas by the end of the century. International migration is changing from flows, predominantly, of migrant workers to increasing numbers of undocumented migrants and refugees, particularly in the developing regions. In addition, new and emerging issues such as the demographic aging of populations, the relationship of the status of women to population, and the relationship of population trends to the environment are now being brought to the attention of the international community.

2. Overall strategy

18.4 The present programme is implemented by the Population Division of the Department of International Economic and Social Affairs of the United Nations Secretariat, and, in respect of technical co-operation activities, by the Population Branch of the Development Administration Division of the Department of Technical Co-operation for Development of the United Nations Secretariat.

18.5 The strategy to be undertaken during the period of the medium-term plan for 1992-1997 will include, inter alia, research and analyses of population variables, and monitoring and reporting on the implementation of the World Population Plan of Action. Population variables will be viewed in terms of their internal interrelations and will be treated in the full context of social and economic development, including concern for the environment, resources, food, housing, education, health and employment.

18.6 Special attention will be given to better dissemination of research output, which will include the publication of findings in a more timely fashion and the use of formats and style of presentation designed to make the findings more accessible to carefully targeted users, such as policy makers, students, researchers and concerned audiences in both developing and developed countries.

18.7 At the technological level, increased use will be made of microcomputers and related technological innovations to improve the efficiency and effectiveness of work, including the wider use of microcomputers to carry out research. Methodologies will be developed for the analysis of demographic data by using the microcomputer at the country and the regional levels. Some of the outputs will be disseminated through "user-friendly" computer programmes specifically designed to meet the needs of population analysts in developing countries. Others will be disseminated in microcomputer-readable form, as well as in printed form.

18.8 Technical co-operation will be provided by means of (a) technical advisory services through country or intercountry advisers and consultants; (b) assistance in building up institutions for training and the related provision of fellowships, workshops and study tours; and (c) provision of equipment.

18.9 An international meeting on population is expected to be held in 1994 to assess the progress made in the carrying out of the World Population Plan of Action and to identify the obstacles encountered and to make recommendations for its further implementation. The related activities will be carried out in accordance with the provisions of General Assembly resolution 39/228 and Economic and Social Council resolution 1986/7. Any new departures as to the objectives and strategy of the programme, emanating from that meeting, will be dealt with in the context of a subsequent revision of the plan.

18.10 The programme is closely related to, and serves to support, the programmes on global development issues and policies (programme 12) and statistics (programme 24). It also receives input from other programmes working in the field of population. Co-operation will be maintained with the regional commissions, the United Nations Centre for Human Settlements (HABITAT), the United Nations Environment Programme, the United Nations Children's Fund and the Office of the United Nations High Commissioner for Refugees and the concerned specialized agencies, as well as with the population activities of intergovernmental and non-governmental organizations that are in consultative status with the Economic and Social Council. The activities of the programme not financed from the regular budget, particularly technical co-operation, will continue to rely upon the United Nations Population Fund (UNFPA) as the major funding agency. There is also close co-ordination, in particular within the United Nations system, with the United Nations University, the World Food Programme, the International Labour Organisation, the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization and the World Health Organization and the World Bank, through the Ad Hoc Inter-Agency Working

Group on Demographic Estimates and Projections of the Administrative Committee on Co-ordination.

3. Subprogramme structure and priorities

18.11 The programme is organized into five subprogrammes, as follows:

Subprogramme 1. Analysis of demographic variables at world level

Subprogramme 2. World population projections

Subprogramme 3. Population policy and socio-economic development

Subprogramme 4. Monitoring, review and appraisal, co-ordination and dissemination of population information

Subprogramme 5. Technical co-operation in population

Subprogrammes 1 to 4 are carried out by the Department of International Economic and Social Affairs and subprogramme 5 is carried out by the Department of Technical Co-operation for Development.

18.12 In view of the importance attached to the monitoring, review and appraisal, co-ordination and dissemination of population information, subprogramme 4 is designated high priority.

B. Subprogrammes

SUBPROGRAMME 1. ANALYSIS OF DEMOGRAPHIC VARIABLES AT WORLD LEVEL

(a) Objectives

18.13 The legislative authority for the present subprogramme derives from the World Population Plan of Action of 1974, paragraph 78; General Assembly resolution 3344 (XXIX); and Economic and Social Council resolutions 1763 (LIV), 1946 (LVIII), 2053 (LXII), 1979/33, 1981/29, 1985/3, 1987/71 and 1989/93.

18.14 While the amount of useful information available on demographic variables has increased significantly during recent years, understanding of the dynamics of fertility remains inadequate to predict its future course; a better understanding of the social and economic implications of trends in fertility levels is essential. Similarly, changing patterns of mortality rates and still unacceptably high levels of mortality in some populations continue to call for further research.

18.15 Rapid urban growth is not the only aspect of change in spatial distribution that is important in relation to development and policy concerns. Other new patterns of population distribution and migration that profoundly affect rural areas, small towns and intermediate-sized cities should also be considered. Changes in internal population distribution and migration, whose consequences, both positive and negative, are not well enough understood for areas of destination and origin, can potentially have a profound effect on social and economic development.

18.16 Although migration for permanent resettlement still constitutes a significant component of international flows, the temporary migration of labour, undocumented or illegal migration and refugee movements, which are generally more difficult to measure, currently make up the main components of those flows and are expected to continue to be of concern to Governments and the international community in general.

18.17 In the light of the above, the objectives of the subprogramme are to provide scientific assessments of the levels and trends of demographic variables, such as fertility, status of women and the family, mortality and morbidity, urbanization, internal and international migration, all of which affect population size, age and sex structure, and rate of growth for most countries and regions of the world.

(b) Course of action of the Secretariat

18.18 In the medium-term plan period, particular attention will be given to charting new and emerging patterns of fertility and of family planning practice and improving understanding of the relationships of those patterns with the status of women, the organization of family life, government programmes and policies and other social and economic factors that operate at the family as well as at the community level. In the area of mortality emphasis will be given to the study of trends, changing causes and consequences of mortality differences, both between and within countries, and their relevance for policy. Special attention will also be given to the study of the relationship between mortality levels and the status of women, who are often the health providers within the household.

18.19 Research will be undertaken in the area of internal population distribution and migration. Special efforts will be made to monitor politically volatile components of migration, including migration for permanent resettlement, temporary migration of labour, undocumented or illegal migration and refugee movements.

SUBPROGRAMME 2. WORLD POPULATION PROJECTIONS

(a) Objectives

18.20 The legislative authority for the present subprogramme derives from the World Population Plan of Action of 1974, paragraph 78 (e); General Assembly resolution 3344 (XXIX); and Economic and Social Council resolutions 1763 (LIV), 1946 (LVIII), 2053 (LXII), 1979/33, 1981/29, 1985/3, 1987/71 and 1989/93.

18.21 The objectives of the subprogramme are to prepare biennially, for all countries of the world, past and current estimates and projections of their population size, by age and sex, rates of population growth, and other major demographic indicators, and to prepare biennially estimates and projections of urban and rural populations and of urban agglomerations for all countries and regions.

(b) Course of action of the Secretariat

18.22 During the medium-term plan for the period 1992-1997, rounds of estimates and projections will be undertaken on a biennial basis covering a total period of 75 years or more, starting in 1950. In undertaking those estimates and projections, a comprehensive and systematic assessment of the major demographic variables for every quinquennial year and period will be made, taking into account

the results of the work in subprogramme 1. The combined effects on population growth and distribution of the levels and trends of the major demographic variables will also be assessed and the consistency among them will be checked. Based on plausible future courses of changes in demographic trends, four variants of projections will be prepared, namely, medium, high, low and constant-fertility variants. Those estimates and projections are used throughout the United Nations system, by Governments, by non-governmental organizations and other private institutions. To increase the usefulness of those estimates and projections to the users, special efforts will be made during the period to expand and improve the dissemination of results in a form suitable for use on microcomputers.

SUBPROGRAMME 3. POPULATION POLICY AND SOCIO-ECONOMIC DEVELOPMENT

(a) Objectives

18.23 The legislative authority for the subprogramme derives from the World Population Plan of Action of 1974, paragraph 78; General Assembly resolutions 3344 (XXIX) and 3345 (XXIX); and Economic and Social Council resolutions 1943 (LVIII), 1979/32, annex, part B, paragraphs 1, 3, 9 and 13, 1979/33, paragraphs 2 (d) (e), 1981/29, 1985/3, 1987/71 and 1989/93.

18.24 The complex effects and interdependencies between population trends and policies and major areas of socio-economic development, in particular the environment, have given rise to increasing demands by countries and regions for relevant research and analysis. There is general agreement for a more complete integration of population with development processes and policy formulation, but less agreement with respect to planning for resource use and environmental concerns.

18.25 Although there is global consensus on most population issues following the World Population Conference of 1974, new concerns, emphases and approaches have arisen regarding the relationships between population growth and socio-economic development. Other issues of concern include the centrality of the status and role of women in population and development processes, the significance of urbanization and the growth of large metropolitan areas and the aging and changing age structure of populations.

18.26 The objective of the subprogramme therefore is to assess the consequences of demographic trends for socio-economic development and of governmental policies intended to influence population trends.

(b) Course of action of the Secretariat

18.27 Population phenomena will be considered within the larger development framework. Methodologies and development strategies will be formulated and accurate and scientific analyses of population policy will be undertaken to assist population analysts and development planners in their efforts to integrate demographic concerns into policies and plans. In particular, studies will be undertaken to provide a deeper and clearer understanding of the complex relationships of population change to social and economic development vis-à-vis resource and environmental concerns.

SUBPROGRAMME 4. MONITORING, REVIEW AND APPRAISAL, CO-ORDINATION AND DISSEMINATION OF POPULATION INFORMATION

(a) Objectives

18.28 The legislative authority for the subprogramme derives from the World Population Plan of Action of 1974, paragraphs 107 to 109; General Assembly resolutions 3344 (XXIX) and 39/228; and Economic and Social Council decision 87 (LVIII) and resolutions 2051 (LXII), 2053 (LXII), 1979/32, 1979/33, 1981/29, 1985/4, 1986/7, 1987/71, 1987/72, 1989/89, 1989/92 and 1989/93.

18.29 The objectives of the subprogramme are to assess, prepare, co-ordinate and disseminate accurate up-dated information on the world demographic situation, to monitor population trends and policies and to review and appraise the implementation of the World Population Plan of Action quinquennially.

(b) Course of action of the Secretariat

18.30 Building upon and synthesizing the research carried out in subprogrammes 1, 2 and 3, biennial reports on the monitoring of population trends and policies and quinquennial reports on the review and appraisal of the implementation of the World Population Plan of Action will be undertaken during the period of the medium-term plan for 1992-1997. Reports will be prepared to provide the basis for the co-ordination of population activities of the organizations of the United Nations system and with intergovernmental and non-governmental organizations. The dissemination of population research findings produced in the three preceding subprogrammes will be carried out in subprogramme 4.

18.31 The secretariat responsible for the implementation of the programme will play a leading role in the preparation, organization and substantive servicing of the international meeting on population anticipated to be held in 1994.

18.32 The biennial reports on the monitoring of population trends and policies will include an in-depth treatment of selected new, emerging or critical issues to be chosen by the Population Commission. Examples of possible topics are the aging of populations in developed and developing countries, population change and the status of women, population and sustainable development, population and the environment and the demographic aspects of AIDS.

SUBPROGRAMME 5. TECHNICAL CO-OPERATION IN POPULATION

(a) Objectives

18.33 The legislative authority for the subprogramme derives from General Assembly resolution 3344 (XXIX) and Economic and Social Council resolutions 1984/4, 1985/5, 1986/7, 1987/71 and 1989/97.

18.34 Most developing countries continue to be affected by the shortage of relevant population data, trained personnel in the newer and still emerging techniques of demographic analysis and inadequate institutional infrastructures for the use of new techniques.

18.35 The objectives of the subprogramme therefore are to increase national capabilities for training in population and demography and analysis of population

data, and to use the results in development planning and the formulation and implementation of national population policies in the context of development planning.

(b) Course of action of the Secretariat

18.36 Support and co-operation will be provided in population matters to Governments requesting assistance in the implementation of the World Population Plan of Action and the recommendations of the 1984 International Conference on Population will be provided. Support will also be provided for the organization and servicing of the international population meeting expected in 1994. Technical support will be provided for training of demographers and population experts, demographic analysis and dissemination and utilization of results and for population policy and development planning, assisting in co-ordination at national levels, and promoting technical co-operation among developing countries. The Secretariat will also provide support for the establishment and/or strengthening of national institutions to enhance their self-sufficiency in population policy and population and development planning, especially by using relevant microcomputer technology. Those activities will rely on the availability of extrabudgetary resources, especially those provided by UNFPA.

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PROPOSED MEDIUM-TERM PLAN FOR THE PERIOD 1992-1997*

MAJOR PROGRAMME IV. INTERNATIONAL ECONOMIC CO-OPERATION FOR DEVELOPMENT

Programme 19. Natural resources

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* The present document contains programme 19 of the proposed medium-term plan for the period 1992-1997. The complete medium-term plan will subsequently be issued in final printed form as Official Records of the General Assembly, Forty-fifth Session, Supplement No. 6 (A/45/6/Rev.1).

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PROGRAMME 19. NATURAL RESOURCES

A. Programme

1. General orientation

19.1 The present programme is carried out within the framework of General Assembly resolutions 32/158, 32/176, 33/194, 34/201 and 40/171; and Economic and Social Council resolutions 131 (VI), 715 A (XXVII), 814 (XXXI), 1761 (LIV), 1954 (LIX), 2014 (LXI), 2121 (LXIII), 1979/68, 1979/70, 1979/71, 1981/76, 1981/77, 1981/78, 1981/79, 1981/80, 1981/81, 1981/91, 1985/49, 1985/50, 1985/53, 1987/7, 1989/7 and 1989/116.

19.2 The exploration, development, rational use and effective management of a nation's natural resources endowment remain one of the essential components for the achievement of economic and social progress. The activities in the field of natural resources will help strengthen the national capabilities to identify, explore, develop and manage effectively the non-agricultural natural resources sector as a critical component for national economic and social development within the context of permanent sovereignty over natural resources. During the period 1992-1997 of the medium-term plan, it will be essential, in an increasingly competitive and dynamic international economy, for developing countries to have the human, technological, institutional, financial and managerial capabilities to broaden the development of their natural resources bases in order to meet the multiple requirements for sustained economic growth and social progress.

19.3 In recent years, there has been a general improvement in mineral markets, which led to the exploration and development of mineral resources that aim to reduce dependence of developing countries on imports of major construction materials, such as cement, glass and building stones. Efforts are required to promote investment for mineral resource development.

2. Overall strategy

19.4 The Department of International Economic and Social Affairs and the Department of Technical Co-operation for Development of the United Nations Secretariat will be responsible for the implementation of the programme. The implementation will be done through: the provision of assistance to developing countries; the technical co-operation activities at the country level; the preparation and timely distribution of technical publications on important developments in the sector, promoting the sharing of information and experience by the organization of workshops, symposia and study tours; and the substantive support of specialized intergovernmental bodies.

19.5 The programme will be carried out in co-ordination with the United Nations Conference on Trade and Development, the regional commissions and with the major funding bodies such as the United Nations Development Programme and the World Bank, as well as in co-operation with the relevant programmes of other United Nations agencies such as the United Nations Industrial Development Organization, the Food and Agriculture Organization of the United Nations, the World Health Organization and the United Nations Children's Fund. The programme will also support the

objectives, and be guided by the results, of the United Nations Conference on Environment and Development.

3. Subprogramme structure and priorities

19.6 Based on the general orientation outlined above, the programme will comprise the following four subprogrammes:

Subprogramme 1. Co-ordination in the field of water resources
Subprogramme 2. Water resources development and management
Subprogramme 3. Mineral resources
Subprogramme 4. Surveying, mapping and international co-operation in cartography

Subprogramme 1 will be implemented by the Department of International Economic and Social Affairs. Subprogrammes 2, 3 and 4 will be implemented by the Department of Technical Co-operation for Development.

19.7 High priority has been assigned to subprogrammes 2 and 3.

B. Subprogrammes

SUBPROGRAMME 1. CO-ORDINATION IN THE FIELD OF WATER RESOURCES

(a) Objectives

19.8 The legislative authority for the subprogramme derives from General Assembly resolutions 32/158 and 40/171; and Economic and Social Council resolutions 2121 (LXIII), 1979/68, 1985/53, 1987/7 and 1989/7.

19.9 In spite of significant progress achieved during the 1980s, neither the objectives of the Mar del Plata Action Plan, adopted by the United Nations Water Conference in 1977, nor those of the International Drinking Water Supply and Sanitation Decade, have been fully realized. Progress concerning capabilities of countries to assess water resources has been limited.

19.10 Institutional and legislative constraints continue to have negative effects on the development, utilization and conservation of water resources. A very large number of urban and rural poor in developing countries still lack minimum water supply and sanitation services. Increased efforts will be needed in order to expand the use of water in irrigated agriculture, increase efficiency in water use and arrest environmental effects of irrigation. Environmental degradation associated with the deterioration of water quality is becoming an increasingly serious problem both in terms of increased pollution and the inadequacy of controls. Efforts concerning the mitigation of water-related disasters have not been carried out in a systematic manner as an integral part of policy formulation and management.

19.11 At its forty-fifth session, the General Assembly will have before it a report concerning an assessment of the International Drinking Water Supply and Sanitation Decade, in accordance with General Assembly resolution 40/171 of 17 December 1985. Action proposals stemming from that review, as well as

recommendations contained in a strategy for action for the implementation in the 1990s of the Mar del Plata Action Plan, to be adopted by the Committee on Natural Resources, will constitute the basis for action by Governments and organizations of the United Nations system during the period of the medium-term plan.

19.12 The objectives of the subprogramme are: to promote system-wide co-operation and co-ordination in the field of water resources through the collection and dissemination of information of relevance to the organizations concerned and by analysing and promoting consideration of issues of an interdisciplinary nature; and to gather and analyse information concerning the implementation of the Mar del Plata Action Plan in the light of action-oriented recommendations formulated by intergovernmental bodies for consideration by those bodies at their various sessions.

(b) Course of action of the Secretariat

19.13 The promotion of co-operation and co-ordination among the organizations of the United Nations system will continue to be an important factor in increasing their capability to assist Governments in implementing the recommendations from intergovernmental bodies within the framework of the Mar del Plata Action Plan.

19.14 In order to facilitate periodic reviews by the Committee on Natural Resources and other intergovernmental bodies, the Secretariat will continue to monitor progress by Governments and organizations of the United Nations system in the implementation of the Mar del Plata Action Plan, in the light of action-oriented recommendations to be made by the General Assembly at its forty-fifth session concerning follow-up action after the end of the International Drinking Water Supply and Sanitation Decade, and of the strategy to be adopted by the Committee on Natural Resources at its twelfth session in 1991.

19.15 Through the Inter-Secretariat Group for Water Resources of the Administrative Committee on Co-ordination (ACC), concerted approaches to the implementation of action recommendations from intergovernmental bodies will be promoted, which will involve the preparation of analyses of issues of an interdisciplinary nature and of proposals for system-wide action, as well as the collection of information on activities of the organizations of the system active in the field of water resources. Co-operative arrangements will be continued concerning drinking water supply and sanitation, following the end of the International Drinking Water Supply and Sanitation Decade.

SUBPROGRAMME 2. WATER RESOURCES DEVELOPMENT AND MANAGEMENT

(a) Objectives

19.16 The legislative authority for the subprogramme derives from General Assembly resolution 32/158 and Economic and Social Council resolutions 2121 (LXIII), 1979/70, 1981/80, 1981/81, 1985/49, 1985/50 and 1987/7.

19.17 Adequate mobilization and management of the financial, technological and human resources needed for water development and conservation are closely related to institutional factors. Yet, recent assessments indicate persistent difficulties in planning, legal and institutional arrangements. Inadequate institutional structures hamper increased community and private sector participation in resource mobilization, and often neglect local operation and maintenance activities. It is

necessary to involve the women of the community, as the main managers of water supply and sanitation facilities, in the planning, design, operation and maintenance of such facilities. Water legislation needs to be more flexible to improve allocation efficiency, to protect the resource base and to ensure equitable policies for cost recovery.

19.18 There is a need for increased knowledge about the availability of water resources, particularly in the case of ground water, and an increasingly urgent need to monitor ground-water utilization and changes in water quality.

19.19 Current levels of funding represent only a fraction of estimated requirements, while the servicing and payment of existing external debt prevents further national investment in water resources. At the same time, well-conceived water resources programmes and projects are in short supply. Failure to implement fully cost recovery policies in some cases limits the expansion of government programmes and results in low levels of operation and maintenance of existing projects. Increased attention needs to be given to the generation of financial resources from national sources, including, where appropriate, the involvement of the private sector and external support agencies.

19.20 Water pollution from domestic, industrial and agricultural sources is a potentially serious problem for developing countries, although the full dimensions of the problem have not been adequately investigated and analysed. Salinity and saltwater intrusion into ground water have increased with the need for higher rates of abstraction, particularly in coastal areas. More attention needs to be given to environmental and health considerations in water resources development, along with the involvement of women in health education.

19.21 Technological practices are affected by technical, social, cultural and institutional factors. Many countries are affected by technologies not suited to their particular conditions and are therefore not able to operate, maintain or adapt imported equipment. Technologies should be appropriate to the given community and should be based as much as possible on local materials and manufacture and ease of maintenance at the local level.

19.22 Lack of trained personnel at all levels and the inadequacy of training facilities and programmes constitute severe constraints to the development, use and management of water resources. The main problems stem from inadequate training programmes and rigid systems of personnel management. Much could be gained by giving particular emphasis to training women as active participants, not only in the design and management of water systems, but also at the policy formulation stage.

19.23 The main objectives of the subprogramme are:

(a) To assist developing countries through technical co-operation activities in order to strengthen their capacity to collect and analyse data on surface and ground-water resources;

(b) To improve water use efficiency through better planning and allocation of scarce water resources and through conservation measures;

(c) To provide on-the-job training to middle-level technicians and drillers and to users, especially women, in village-level operation and maintenance;

(d) To monitor or introduce to developing countries current technological options for the assessment, data storage and retrieval and development of water resources, both conventional and non-conventional;

(e) To prepare up-to-date technical publications and manuals on issues of concern to water specialists in the fields of ground-water assessment, international river and lake-basin development, water-planning, management, economics and legislation.

(b) Course of action of the Secretariat

19.24 Priority will be given to improving the knowledge of the availability of water resources, especially ground water, and institutional strengthening, based on interdisciplinary approaches, including technical, legislative and economic aspects. Development of specialized working tools, such as ground-water software for micro-computers used in assessment and planning, will be particularly addressed. Economic and legal elements will be considered in terms of their structural role (how they promote development and conservation), while their regulatory components will be related to the main objectives of development and conservation.

19.25 Support for the improvement of knowledge will be provided through the dissemination of information concerning surface and ground-water resources and on technological developments of relevance to developing countries. Continued support will be offered for carrying out surveys, pre-investment surveys, and ground-water exploration and development.

19.26 Emphasis will be placed on better utilization of existing supplies of vulnerable and scarce water resources through programmes related to reductions in wastage, leak detection and repair and control of excess irrigation usage, as well as through management of demand to cover reasonable levels of use according to available supply. Moreover, the preservation of existing water quality through effective economic and legal policies is considered a top priority. Likewise, increased attention should be given to multi-purpose water resources development.

19.27 The economic element will emphasize more efficient utilization of existing financial and human resources in water resources development, which could be achieved by orienting projects to meet the real needs of the largest number of people, at the lowest possible per capita cost, and by establishing projects affordable to the local community (at least for operation and maintenance) and within the absorptive capacity of the country to implement them. Training will be aimed at remedying deficiencies in the structure of the work force, such as shortages of skilled technicians, and also at making the best possible use of existing human resources, including women. More efficient use of existing infrastructure would imply conscientious operation and maintenance, as well as rehabilitation of existing water-supply systems.

19.28 Technical co-operation activities will concentrate on the transfer and adaptation of water technologies, the strengthening of institutional systems, the exploration and development of new water sources, and the promotion of economic and legal measures to improve efficiency in water use. Interregional seminars on water issues of widespread importance will be held as required and research publications covering development and management issues will be widely disseminated to water resources specialists.

19.29 The monitoring of progress in the implementation of the Mar del Plata Action Plan, including the monitoring of progress in providing drinking water supply and sanitation services to the urban and rural poor, following the end of the International Drinking Water Supply and Sanitation Decade, will continue to be an essential element of the work of the Secretariat.

19.30 The further implementation of the Mar del Plata Action Plan in the 1990s, as well as system-wide action concerning drinking water supply and sanitation, will continue to require close co-operation and co-ordination of efforts among the organizations of the United Nations system concerned. Continued support will be given to the ACC Inter-Secretariat Group for Water Resources, as well as to co-operative arrangements concerning drinking water supply and sanitation following the end of the Decade.

SUBPROGRAMME 3. MINERAL RESOURCES

(a) Objectives

19.31 The legislative authority for the subprogramme derives from General Assembly resolutions 32/176, 33/194 and 34/201; and Economic and Social Council resolutions 1761 (LIV), 1954 (LIX), 2014 (LXI), 1979/71, 1981/76, 1981/77, 1981/78, 1981/79 and 1988/91.

19.32 During the early 1980s, a structural change had occurred in the international market for mineral raw materials, resulting in substantially lower consumption growth rates in the major user countries, as compared to previous decades. This shift has had profound implications for those developing countries that are heavily reliant on minerals as a constituent of their gross domestic products and as an element in their balance of payments. Many developing countries have strengthened their institutions responsible for basic geological investigations, mineral exploration, technical and economic evaluation of mineral projects, legislative and administrative regulation of the mineral resources sector, and investment promotion and negotiations with foreign investors. Knowledge of the resource endowment has increased in most countries, personnel have been trained in both the public and private sectors, investment has been attracted for exploration, development of mines and processing facilities and rehabilitation of existing installations, and new mineral development regulations and strategies have been introduced. There has recently been a considerable increase in prices for most minerals and metals as a result of a rise in consumption growth. As a consequence, stock levels decreased for some minerals and metals and shortages developed for some others.

19.33 While, during the 1960s and 1970s, major large projects dominated the mining industry, more recently the new projects are smaller, produce less common minerals and metals and include installations for further processing within the developing countries. Exploration and production technology changes rapidly, and developing countries often lack access to such new technology or have access only through the services of foreign expertise.

19.34 While adequately trained and experienced personnel exist in some developing countries with a long history of mineral sector activities, most countries still lack managerial and technical expertise required for the efficient management of the mineral sector. Availability of experienced personnel is particularly important in view of the persistent weakness of the international mineral markets,

and rational policies are important for achieving progress and remaining, or becoming, competitive. The most important constraints are the lack of adequate training facilities and opportunities to gain experience. Because of the international nature of the minerals industry, such experience has to be gained at the international level, and not only in the national framework, as is the case in many countries at present.

19.35 In recent decades, the demand for certain metals has been sharply curtailed by substitution of man-made materials, e.g., substitution for tin by plastics. Prospects for the continuation of the use of synthetics have important implications for the consumption, required rates of investment and availability of financing to the minerals industries, which need to be examined systematically.

19.36 Among those countries dependent on mineral commodities for government revenue, foreign exchange and employment, as well as economic development generally, many are highly dependent on one or very few minerals and metals, such as copper, tin, iron ore or bauxite. That dependence has developed over many years and makes those countries highly vulnerable to income fluctuations that result from the volatile nature of mineral markets. Diversification to other minerals may be needed. Most developing countries, with the exception of very small entities, lack a systematic understanding of planning, regional development and promotion of investment in the mineral resources sector. To improve such knowledge can be a time-consuming exercise. In many countries, most of the basic information is available, but would have to be collected and made available to those interested in exploration and mine development.

19.37 Additional investment is required, on a selective basis, for small to medium-mining projects, for mines producing gold and other high-value materials and metals, for rehabilitation of existing facilities, for production of non-metallic minerals where those substitute for imported raw materials and for mineral resources surveys generally. Government funds and those provided by multilateral and bilateral co-operation agencies are limited, and substantial contributions are required from the private sector, both within developing countries and from international investors. There is a need to create reasonable conditions for attracting finance while, at the same time, maintaining the principle of permanent sovereignty over natural resources.

19.38 The objectives of the subprogramme are:

(a) To assist developing countries to strengthen their capacities to explore, develop and manage effectively their mineral resources;

(b) To assist developing countries in strengthening their capacity to ensure their permanent sovereignty over natural resources;

(c) To ensure a continuous flow of information to Member States on the prospects for, trends on and development in selected minerals and in the international minerals sector for decision-making, including identification of financing and investment requirements;

(d) To co-operate with other international organizations and development agencies in efforts to promote the transfer of technology to developing countries, in particular, the least developed countries.

(b) Course of action of the Secretariat

19.39 While in the past major importance was assigned to discovering mineral occurrences, the main elements of the course of action to be pursued during the 1990s would be to support better management of existing resources.

19.40 Generally, activities include close co-ordination of technical co-operation activities, research in support of such activities, dissemination of information on managerial, economic, technical and social progress in all fields within the mineral resources sector, and probably most important, strengthening of institutions in developing countries and training of personnel at all levels.

19.41 More specifically, future programmes will address the supply-demand balance for metals and minerals, the role of minerals in economic growth and development in developing countries, opportunities for international co-operation in the minerals field, problems of rational management of mineral resources, direct and efficient involvement of countries in all aspects of resource development, and strengthening of indigenous capabilities to assure increasing self-reliance of the developing countries. Activities will include:

(a) Continuous monitoring of consumption, production, stocks, and prices of the major mineral raw materials;

(b) Assessments of long-run trends in mineral sector development (including investment, financing and utilization);

(c) Systematic efforts to identify emerging problem areas and issues involving minerals;

(d) Identification of the macro-economic and international trade implications of evolutionary changes and structural shifts within the minerals sector;

(e) Review and preparation of mineral policies and mining codes of developing countries, assistance in investment and other contract negotiations, financing arrangement, investment promotion and training in computer-supported negotiation techniques;

(f) Manpower development/training of technicians and professionals for mineral programmes in all areas of mineral development;

(g) Detailed geochemical mapping;

(h) Detailed ground and airborne geophysical surveys;

(i) Preliminary feasibility studies: drilling, mineral sampling and analysis, mineral exploration, reserve and grade estimation, economic evaluation and benefits;

(j) Feasibility studies and investment promotion: technical feasibility and mineral marketing studies, preparation of bankable documents for investment negotiations;

(k) Establishment of computerized documentation systems/data centres;

(l) Mineral right/concession/title computerization;

(m) Mineral development planning;

(n) Non-metallic mineral and construction material evaluation and development;

(o) Ugrading chemical laboratory and other support facilities for mineral exploration;

(p) Reorganization, streamlining and rehabilitation of government mineral organizations and State enterprise management;

(q) Organization of workshops, seminars and symposiums, as required;

(r) Technical advice on small-scale mining (regulations, technical assistance).

SUBPROGRAMME 4. SURVEYING, MAPPING AND INTERNATIONAL CO-OPERATION IN CARTOGRAPHY

(a) Objectives

19.42 The legislative authority for the subprogramme derives from Economic and Social Council resolutions 131 (VI), 715 A (XXVII), 814 (XXXI) and 1989/116.

19.43 Topographic base maps and nautical and bathymetric charts are needed prior to exploration and exploitation of mineral and other natural resources; they are essential for the infrastructure of any country and are continually used also as a base for statistical and administrative data and for planned urban development. Their derivatives, thematic maps, provide an economically viable aid in land use and in the assessment of governmental income from land (cadastral surveying and land information systems); their assistance to land, air and sea transportation is also evident (aeronautical and hydrographic charting). There is a lack of technical personnel, training facilities, modern equipment and maintenance facilities and, above all, a lack of knowledge in new fields, such as the use of satellites for geodesy and remote sensing, and the new mapping production techniques. In particular the role of global positioning systems and of geographic information systems is to be stressed, as well as the growing importance of digital databases. At the international level, co-operation is needed for greater efficiency in the preparation of regional maps, the standardization of geographical names and the exchange of new technologies - especially, whenever possible, among developing countries.

19.44 The objective of the subprogramme is to assist Governments, particularly those of developing countries, in the application of the latest technology in cartographic data acquisition, compilation, storage and presentation as a tool for planning economic and social development and in strengthening or establishing various cartographic, cadastral and hydrographic services, including geographical names authorities.

(b) Course of action of the Secretariat

19.45 The activities of the subprogramme include promoting the exchange of technical knowledge and experience and providing support for technical co-operation activities. Substantive servicing of United Nations conferences on cartography and

geographic names, scheduled for the medium-term plan period, will be provided. Information will also continue to be provided to Governments on the latest applications and technological developments in remote sensing relevant to the exploration of natural resources and to the development of coastal areas. Particular attention will be devoted to assisting developing countries in strengthening their capacities to interpret and effectively utilize remotely sensed data. The collaboration of conference and library services will be sought, as appropriate.